

CDP-CX220

SERVICE MANUAL



*US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model*

| | |
|------------------------------------|----------------|
| Model Name Using Similar Mechanism | CDP-CX250 |
| CD Mechanism Type | CDM-40B |
| Base Unit Type | KSM-213BKN/M-N |
| Optical Pick-up Type | KSS-213B/S-N |

SPECIFICATIONS

Compact disc player

| | |
|-----------------------|--|
| Laser | Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous |
| Laser output | Max 44.6 μW * * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture. |
| Frequency response | 20 Hz to 20 kHz $\pm 0.5 \text{ dB}$ |
| Signal-to-noise ratio | More than 105 dB |
| Dynamic range | More than 98 dB |
| Harmonic distortion | Less than 0.0045% |
| Channel separation | More than 97 dB |

Outputs

| | Jack type | Maximum output level | Load impedance |
|-----------------------|--------------------------|----------------------|---------------------|
| LINE OUT | Phono Jacks | 2V (at 50 kilohms) | Over 10 kilohms |
| DIGITAL OUT (OPTICAL) | Optical output connector | -18 dBm | Wave length: 660 nm |

General

Power requirements

| Where purchased | Power requirements |
|-----------------|---|
| USA/Canada | 120 V AC, 60 Hz |
| Australia | 240 V AC, 50/60 Hz |
| Europe | 220 V – 230 V AC, 50/60 Hz |
| Other countries | 110 V – 120 V or 220 V – 240 V AC, adjustable, 50/60 Hz |

| | |
|------------------------------|---|
| Power consumption | 12 W |
| Dimensions (approx.) (w/h/d) | When the front cover is closed 430 \times 200 \times 480 mm (17 \times 7 $\frac{7}{8}$ \times 19 in.) incl. projecting parts |

| | |
|----------------|-----------------|
| Mass (approx.) | 9.5 kg (21 lbs) |
|----------------|-----------------|

Supplied accessories

Audio cord (2 phono plugs – 2 phono plugs) (1)
Remote commander (remote) (1)
Sony SUM-3 (NS) batteries (2)
CD booklet holders (2) and label (1)

Design and specifications are subject to change without notice.

COMPACT DISC PLAYER



SONY®

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MODEL IDENTIFICATION — BACK PANEL —



PART No.

| PART No. | MODEL |
|--------------|-------------------|
| 4-998-525-0□ | US model |
| 4-998-525-1□ | Canadian model |
| 4-998-525-2□ | AEP, AED UK model |
| 4-998-525-4□ | Singapore model |
| 4-998-525-5□ | E model |
| 4-998-525-6□ | Australian model |

- Abbreviation
AED: North European

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

(Except for the customers in the United States and Canada)

The following caution label is located inside the unit.



For the customers in Canada

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

SECTION 1 SERVICING NOTES

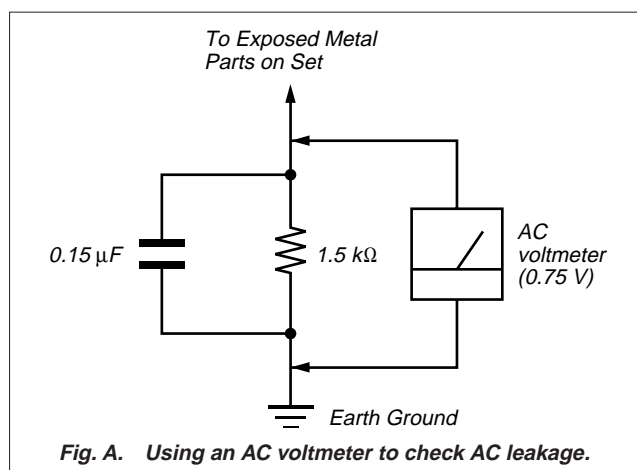
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)



SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the “S curve check” in “CD section adjustment” and check that the S curve waveform is output repeatedly.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.




CD-TEXT TEST DISC

This unit is able to display the test data (character information) written in the CD on its fluorescent indicator tube.

The CD-TEXT TEST DISC (TGCS-313:4-989-366-01) is used for checking the display.

To check, perform the following procedure.

Checking Method:

1. Turn ON the power, set the disc on the disc table with the side labeled as “test disc” as the right side, close the front cover, and chuck the disc.
2. Press the  button and play back the disc.
3. The following will be displayed on the fluorescent indicator tube.
Display : 1kHz/0 dB/ L&R
4. Press the  and  buttons to switch the track. The text data of each track will be displayed.
For details of the displayed contents for each track, refer to “Table 1 : CD-TEXT TEST DISC TEXT Data Contents” and “Table 2 : CD-TEXT TEST DISC Recorded Contents and Display”.

Restrictions in CD-TEXT Display

In this unit, some special characters will not be displayed properly. These will be displayed as a space or a character resembling it. For details, refer to “Table 2 : CD-TEXT DISC Recorded Contents and Display”.

Table 1 : CD-TEXT TEST DISC TEXT Data Contents (TRACKS No. 1 to 41:Normal Characters)

| TRACK No. | Displayed Contents | TRACK No. | Displayed Contents |
|-----------|--------------------|-----------|----------------------------------|
| 1 | 1kHz/0dB/L&R | 22 | 1kHz/-90dB/L&R |
| 2 | 20Hz/0dB/L&R | 23 | Infinity Zero w/o emphasis//L&R |
| 3 | 40Hz/0dB/L&R | 24 | Infinity Zero with emphasis//L&R |
| 4 | 100Hz/0dB/L&R | 25 | 400Hz+7kHz(4:1)/0dB/L&R |
| 5 | 200Hz/0dB/L&R | 26 | 400Hz+7kHz(4:1)/-10dB/L&R |
| 6 | 500Hz/0dB/L&R | 27 | 19kHz+20kHz(1:1)/0dB/L&R |
| 7 | 1kHz/0dB/L&R | 28 | 19kHz+20kHz(1:1)/-10dB/L&R |
| 8 | 5kHz/0dB/L&R | 29 | 100Hz/0dB/L* |
| 9 | 7kHz/0dB/L&R | 30 | 1kHz/0dB/L* |
| 10 | 10kHz/0dB/L&R | 31 | 10kHz/0dB/L* |
| 11 | 16kHz/0dB/L&R | 32 | 20kHz/0dB/L* |
| 12 | 18kHz/0dB/L&R | 33 | 100Hz/0dB/R* |
| 13 | 20kHz/0dB/L&R | 34 | 1kHz/0dB/R* |
| 14 | 1kHz/0dB/L&R | 35 | 10kHz/0dB/R* |
| 15 | 1kHz/-1dB/L&R | 36 | 20kHz/0dB/R* |
| 16 | 1kHz/-3dB/L&R | 37 | 100Hz Squer Wave//L&R |
| 17 | 1kHz/-6dB/L&R | 38 | 1kHz Squer Wave//L&R |
| 18 | 1kHz/-10dB/L&R | 39 | 1kHz w/emphasis/-0.37dB/L&R |
| 19 | 1kHz/-20dB/L&R | 40 | 5kHz w/emphasis/-4.53dB/L&R |
| 20 | 1kHz/-60dB/L&R | 41 | 16kHz w/emphasis/-9.04dB/L&R |
| 21 | 1kHz/-80dB/L&R | | |

NOTE: The contents of Track No. 1 to 41 are the same as those of the current TEST DISC-their titles are displayed.

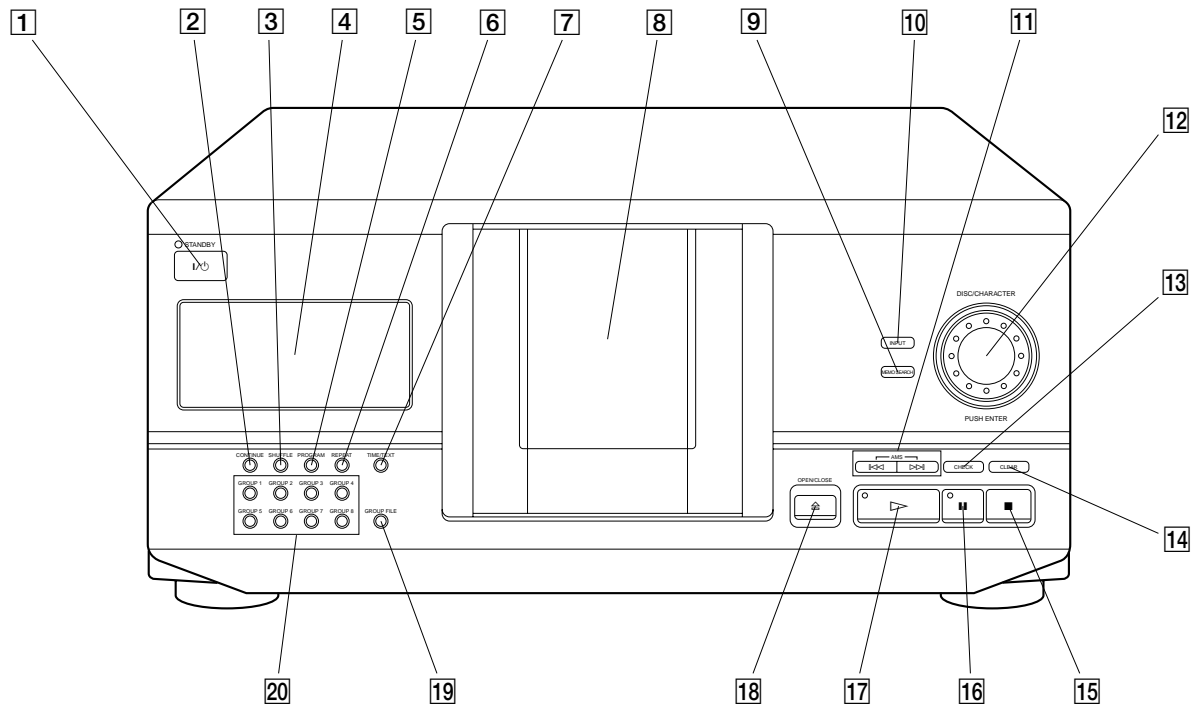
Table 2: CD-TEXT TEST DISC Recorded Contents and Display
(In this unit, some special characters cannot be displayed. This is no a fault.)

| TRACK No. | Recorded Contents | Display |
|-----------|---|---|
| 42 | ! " # \$ % & ' (21h to 27h)1kHz 0dB L&R | ← All the same |
| 43 | () * + , - . / (28h to 2Fh) | ← All the same |
| 44 | 0 1 2 3 4 5 6 7 (30h to 37Fh) | ← All the same |
| 45 | 8 9 : ; < = > ? (38h to 3Fh) | ← All the same |
| 46 | @ A B C D E F G (40h to 47Fh) | ← All the same |
| 47 | H I J K L M N O (48h to 4Fh) | ← All the same |
| 48 | P Q R S T U V W (50h to 57Fh) | P Q R S T U V W (50h to 57h) |
| 49 | X Y Z [\] ^ _ (58h to 5Fh) | X Y Z [\] ^ _ (58.... |
| 50 | ` a b c d e f g (60h to 67Fh) | ` a b c d e f g (60h to 67h) |
| 51 | h i j k l m n o (68h to 6Fh) | ← All the same |
| 52 | p q r s t u v w (70h to 77Fh) | p q r s t u v w (70h to 77h) |
| 53 | x y z { } ~ ■ (78h to 7Fh) | x y z { } ~ ■ (78.... |
| 54 | ¡ ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1 | ¡ ¢ £ ¤ ¥ ¦ § (A0.... ¨ is not displayed |
| 55 | ¨ © ª « ¬ ® ¯ (A8h to AFh) | ¨ (A8.... © ª « ¬ ® ¯ are not displayed |
| 56 | • ± ² ³ ´ µ ¶ • (B0h to B7h) | ´ µ • (B0.... • ± ² ³ ¶ are not displayed |
| 57 | † † ° » ¼ ½ ¾ ¿ (B8h to BFh) | † ¿ (B8.... † ° » ¼ ½ ¾ are not displayed |
| 58 | À Á Â Ã Ä Å Æ Ç (C0h to C7Fh) | À Á Â Ã Ä Å Æ Ç (C0h to C7h) |
| 59 | È É Ê Ë Ì Í Î Ï (C8h to CFh) | ← All the same |
| 60 | Ð Ñ Ò Ó Ô Õ Ö × (D0h to D7Fh) | Ð Ñ Ò Ó Ô Õ Ö × (D0h to D7h) |
| 61 | Ø Ù Ú Û Ü Ý Þ ß (D8h to DFh) | ⌘ Ù Ú Û Ü Ý Þ ß (D8.... |
| 62 | à á â ã ä å æ ç (E0h to E7h) | à á â ã ä å æ ç (E0h to E7h) |
| 63 | è é ê ë ì í î ï (E8h to EFh) | ← All the same |
| 64 | đ ñ ò ó ô õ ö ÷ (F0h to F7Fh) | đ ñ ò ó ô õ ö ÷ (F0h to F7h) |
| 65 | ø ù ú û ü ý þ ÿ (F8h to FFFh) | ø ù ú û ü ý þ ÿ (F8h to FFh) |
| 66 | No.66 | ← All the same |
| 67 | No.67 | ← All the same |
| to | to | to |
| 99 | No.99 | ← All the same |

SECTION 2 GENERAL

LOCATION OF PARTS AND CONTROLS

Front Panel



1 I/⏻ (power switch) button

2 CONTINUE button

3 SHUFFLE button

4 Display window

5 PROGRAM button

6 REPEAT button

7 TIME/TEXT button

8 Front cover

9 MEMO SEARCH button

10 INPUT button

11 ⏮/⏭ buttons

12 JOG dial (DISC/CHARACTER/PUSH ENTER knob)

13 CHECK button

14 CLEAR button

15 ■ button

16 || button

17 ▷ button

18 ⏏ (OPEN/CLOSE) button

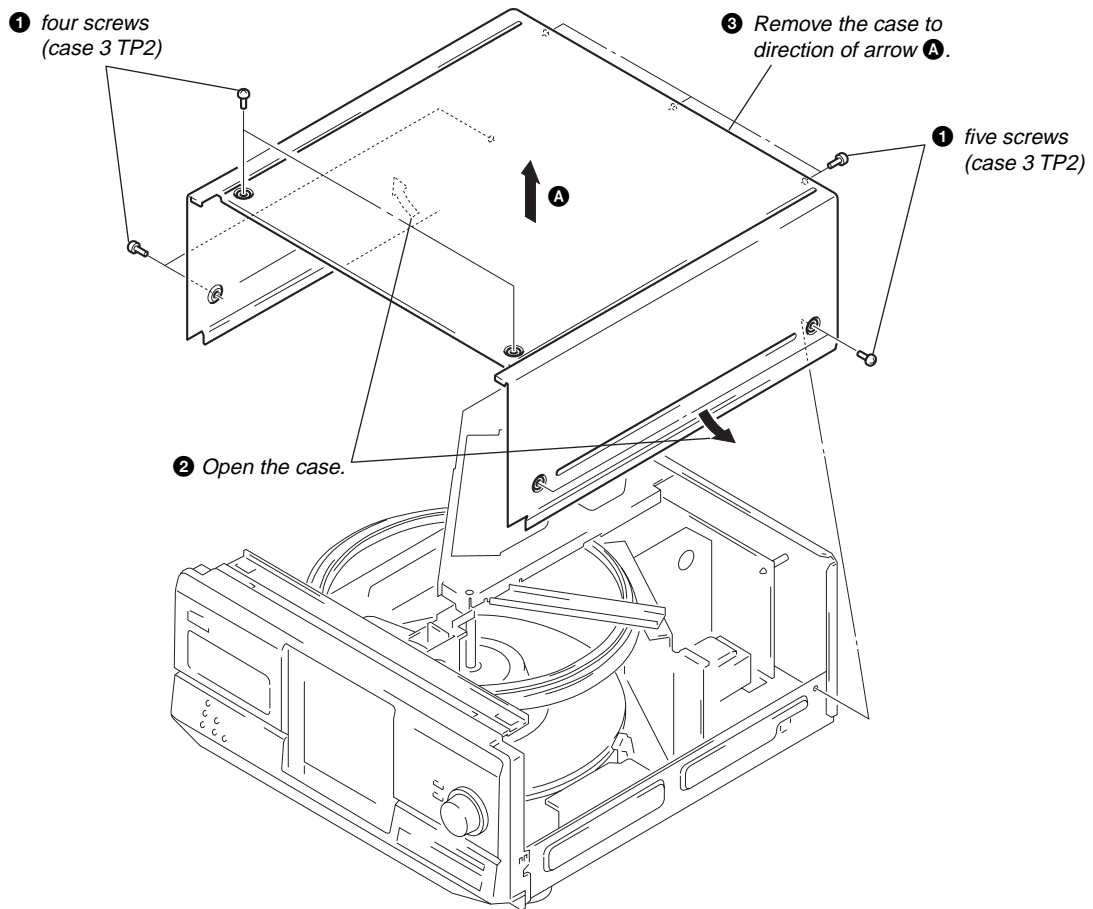
19 GROUP FILE button

20 GROUP 1 – 8 buttons

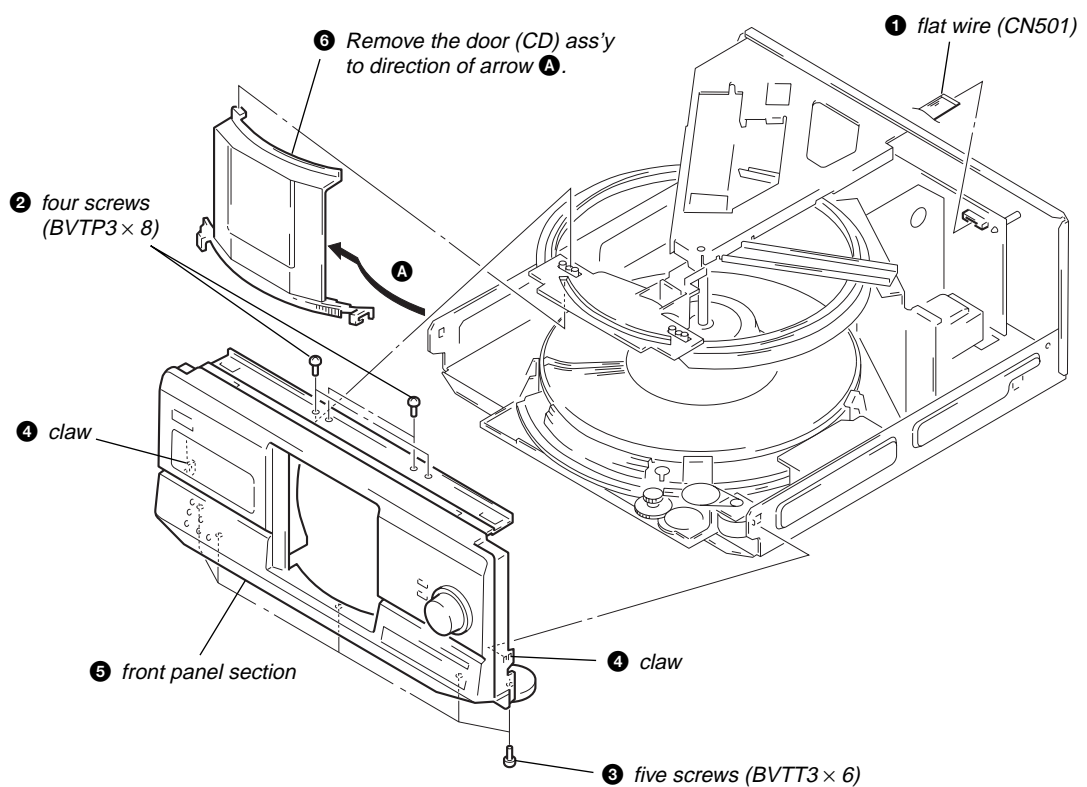
SECTION 3 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

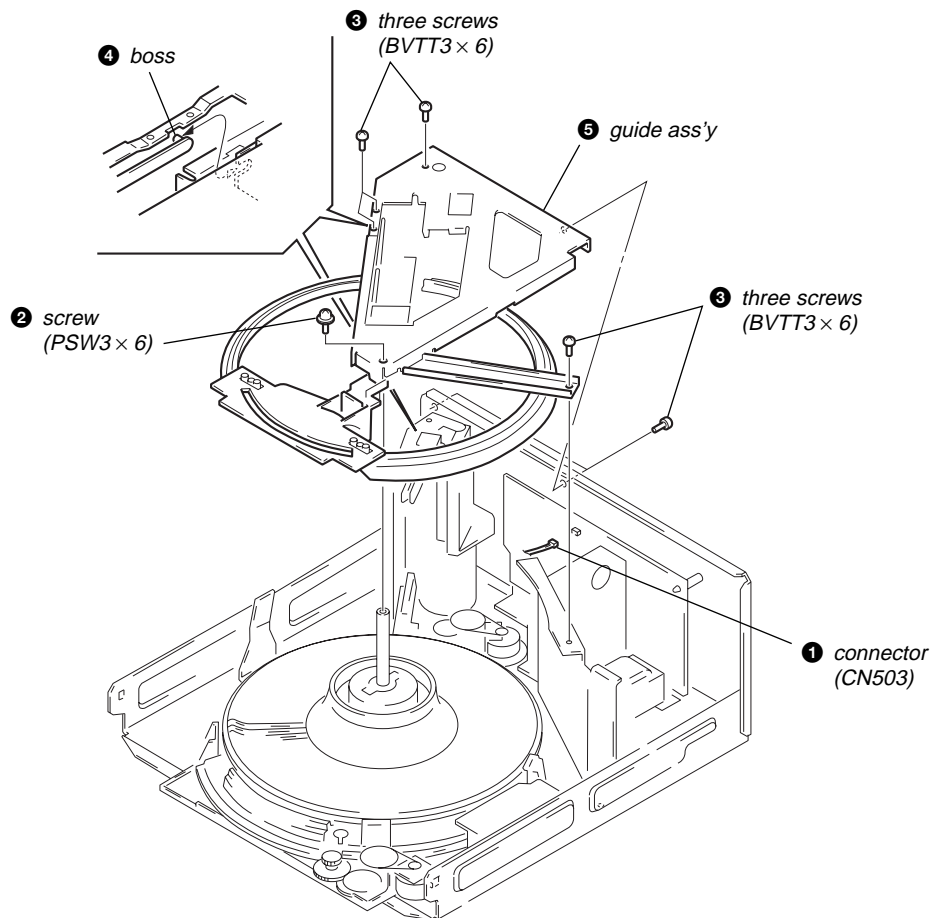
CASE



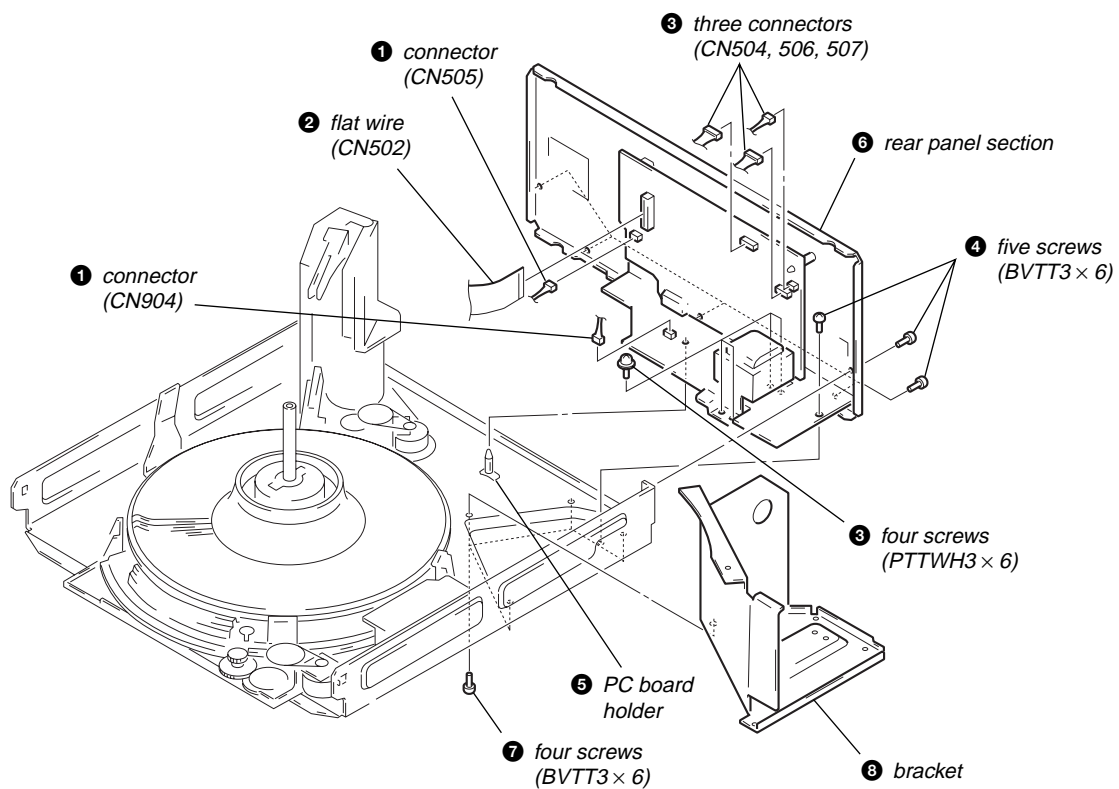
FRONT PANEL SECTION



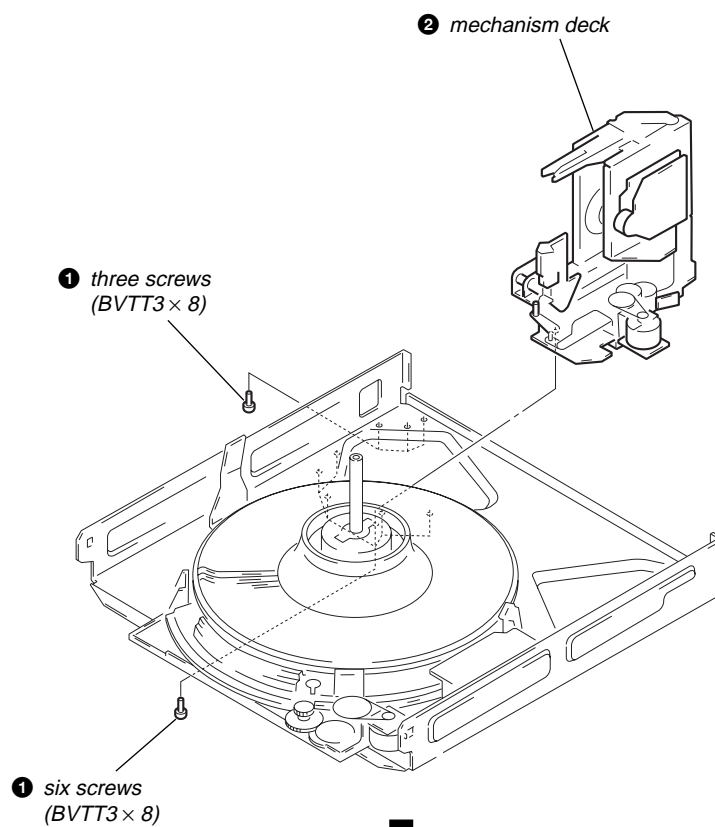
GUIDE ASS'Y



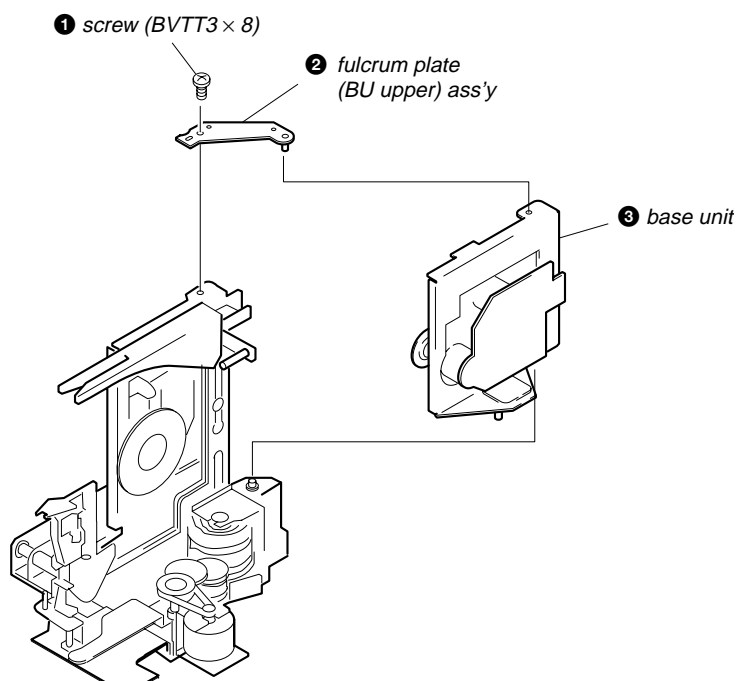
REAR PANEL SECTION



MECHANISM DECK







BASE UNIT




SECTION 4 TEST MODE

DISPLAY CHECK MODE

With the power turned off (standby state), press the  button while pressing the  (pause) button.

All FL segments and grids light up together with the  (play),  (pause), and standby LEDs.

At the same time, the GROUP LEDs are scanned one by one.

Note: To exit this mode, press the  (stop) button.

ADJ MODE

1. Turn ON the power of the unit, set disc to disc table, and perform chucking.
2. Disconnect the power supply plug from the outlet.
3. To set ADJ mode, connect the test point (TP: ADJ) of the MAIN board to Ground, and connect the power supply plug to the outlet.

The power will turn on automatically, and the first track will be played.

In this mode, table rotation and loading operations are not performed because it is taken that the disc has already been chucked.

Note: The same operations are also performed in the following when the test point (TP: ADJ) is connected to Ground after turning on the power.

- Direct search (movement of sledding motor) is not performed during accessing
- Ignored even when GFS becomes L
- Ignored even when the Q data cannot be read
- Focus gain does not decrease
- Spindle gain does not decrease
- Servo related settings can be set manually and checked (Refer to ADJ Mode Special Functions Table)

ADJ Mode Special Functions Table

(The buttons shown with () function by using the supplied remote commander only)

| Button | Button Number or Display |
|-------------|---|
| CONTINUE | Servo average display Displays VC, FE, RF, TE and traverse in hexadecimal numbers |
| SHUFFLE | Focus bias display Each time this is pressed, the focus bias is switched between 1 and 2 1 Bias actually set Optimum bias Minimum jitter 2 U:Upper aliasing bias L:Lower aliasing bias |
| PROGRAM | Auto gain display Displays focus, tracking, sledding in hexadecimal numbers |
| GROUP 1 (1) | Increases the focus bias in 8 steps. |
| GROUP 2 (2) | Sets the focus bias in the middle of aliasing. |
| GROUP 3 (3) | Turns off the tracking and sledding servo |
| GROUP 4 (4) | Returns the auto gain to the initial value (30) |
| GROUP 5 (5) | Turns off the focus servo |
| GROUP 6 (6) | Decreases the focus bias in 8 steps. |
| GROUP 7 (7) | Re-adjusts the focus bias |
| GROUP 8 (8) | Turns on the tracking and sledding servo |
| (9) | Switches the focus servo gain between normal and down FG. norm: normal, FG. down: down |
| (10/0) | Sets the focus bias to 0 (no bias) Next, displays the jitter measured at the focus bias set |
| CHECK | S-curve observation mode |
| CLEAR | Automatic eccentric measurement The results of measurement is displayed in mm directly. |

KEY AND FLUORESCENT DISPLAY TUBE CHECK MODE

1. Connect the test point (TP:AFADJ) of the MAIN board to the Ground, and insert the power plug to the outlet to set this mode. First, the external SRAM is checked, and if abnormal, "SRAM NG" is displayed.

If OK, the following steps are performed.

* Fluorescent Display Tube Check Mode

The whole fluorescent display tube lights up when the connection in step 1 is made.

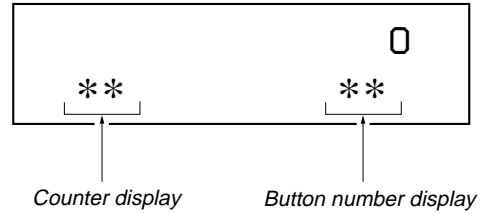
* Key Check Mode

This mode is set when a button is pressed after the whole fluorescent display tube lights.








All buttons have a button number.

When a button is pressed, the counter display is counted up, and the number of that button is displayed.

However, the counter display will only count up to 26, but the number of buttons pressed will always be displayed.



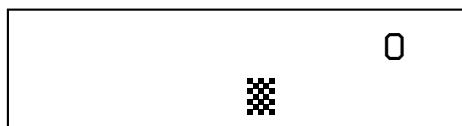
Buttons and Corresponding Button Numbers

| Button | Button Number or Display |
|--|--|
| CLEAR | 3 |
| CHECK | 4 |
|  (AMS) | 5 |
|  (AMS) | 6 |
| PUSH ENTER | 7 |
|  (OPEN/CLOSE) | 9 |
| INPUT | 10 |
| MEMO SEARCH | 11 |
|  | 18 |
| TIME/TEXT | 19 |
| GROUP FILE | 20 |
| GROUP 8 | 21 |
| GROUP 7 | 22 |
| GROUP 6 | 23 |
| GROUP 5 | 24 |
| REPEAT | 27 |
| PROGRAM | 28 |
| SHUFFLE | 29 |
| CONTINUE | 30 |
| GROUP 4 | 31 |
| GROUP 3 | 32 |
| GROUP 2 | 33 |
| GROUP 1 | 34 |
|  | All lit (LED lit) |
|  | Partial lighting 1 (LED lit) |
|  | Partial lighting 2 |
| DISC/ CHARACTER | Partial lighting 3 <ul style="list-style-type: none"> • When the jog dial is rotated to the right, the GROUP LEDs light up in the order of 1 → 2..8 → 2nd → 1. • When the jog dial is rotated to the left, the GROUP LEDs light up in the order of 8 → 7..1 → 2nd → 8. |

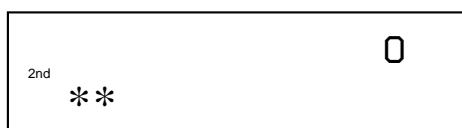
Partial lighting 1



Partial lighting 2



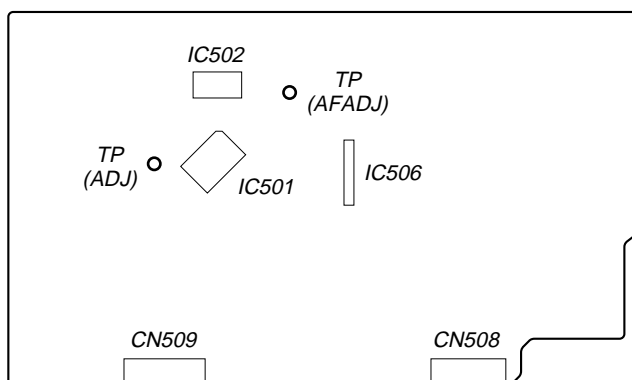
Partial lighting 3



*: Counter displayed

Test Points Location:

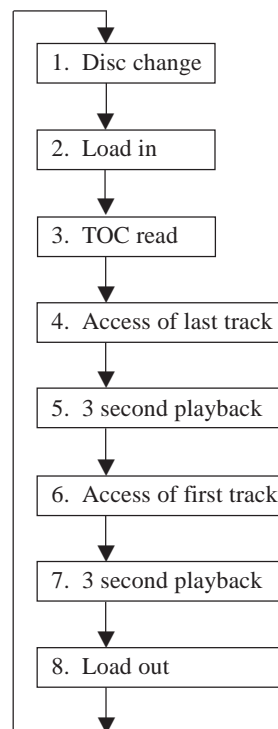
[MAIN BOARD] – Component Side –



AGING MODE

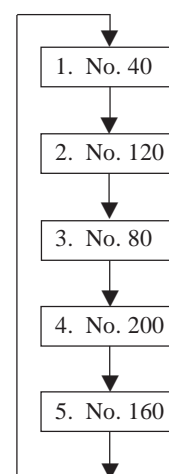
- Mode which repeatedly changes and plays back discs automatically in the unit.
- It will repeat aging as long as no errors occur.
- If an error occurs during aging, it will stop all servos, motors, etc. instantaneously, display the error number, and stop operations. However, the stopping conditions differ according to whether the unit is equipped with the “self-protection function during errors” described later.
The function serves to maintain the state of the unit when errors occur.

Sequence of Aging Mode



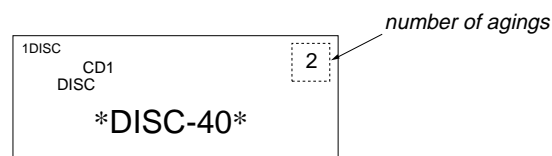
Order of Disc Change

(1 cycle takes 3 minutes)








Special Functions in Aging Mode

1. Disc setting mode:
5 discs are set before setting the aging mode. This mode makes the setting of these discs more easy.
2. Self protection function during errors:
Function which voluntarily corrects errors which occur during normal operations by retries.
If this function is not provided, all operations will be stopped without retiring. It is suitable for checking errors with low reproducibility.
If this function is provided, and errors can be corrected by retries, aging will be continued without stopping.
3. Aging cycle count function:
Functions which displays the number of agings carried out on the Fluorescent indicator tube in numbers. One aging cycle consists of five discs.



Aging Method

1. Change the **COMMAND MODE** switch (S901) on set to **CD1**.
2. Turn ON the power of the unit. Open the front cover.
3. Press the **AGING START** button of the remote commander for aging mode (J-2501-123-A).
4. When the disc set mode is set, the  and  LEDs blink.
5. Rotate the JOG dial. The slits (No. 40, 80, 120, 160, 200) for setting the discs will come forward. Insert the discs into these slits. Do not set the discs in other slits.
6. Set whether the self-protection function during errors is equipped with the unit. Press the **REPEAT** button. If "REPEAT" is displayed on the Fluorescent indicator tube, it means the function is provided. If "REPEAT" is not displayed, it means the function is not provided.
7. Press the  button.
8. The  LED blinks, the aging mode is set, and aging is started.
9. The aging cycle lasts 3 minutes. If errors occur during aging, the error number will be displayed on the Fluorescent indicator tube. (Refer to the following table for the details of the errors.)
10. Aging will be repeated as long as no errors occur.
11. After each aging cycle, the number displayed on the Fluorescent indicator tube will increase.
12. To end aging, press the  button

Error Display

120 Err01

Disc number Error code

Error code

| Code number | Name | Contents |
|-------------|---------------------------|---|
| Err 01 | DISC sensor check 1 | No disc in the specified slit |
| Err 02 | DISC sensor check 2 | Disc in other slits |
| Err 03 | Table operation check 1 | Table motor current over |
| Err 04 | Table operation check 2 | No table sensor input |
| Err 05 | Loading operation check 1 | Load in timeover |
| Err 06 | Loading operation check 2 | Load out timeover |
| Err *1 | BU related check 1 | Access timeover |
| Err *2 | BU related check 2 | High speed search NG |
| Err *3 | BU related check 3 | Q data read error |
| Err *4 | BU related check 4 | BU operation (from focus search to until signal can be read) timeover |
| Err *5 | BU related check 5 | GFS monitor error |
| Err *6 | BU related check 6 | Focus cannot be imposed by focus search |
| Err *7 | BU related check 7 | Auto focus bias adjustment cannot be performed |

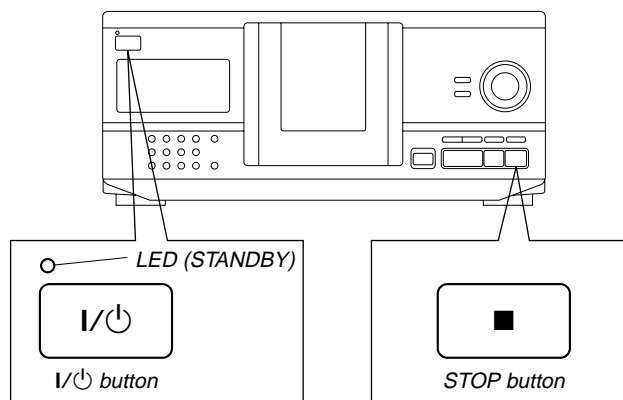
The * numbers mean the following according to the state of the unit during aging

- 2 : From checking to end of TOC read
- 3 : From end of TOC read to end of last track playback
- 4 : From end of last track playback to end of first track playback

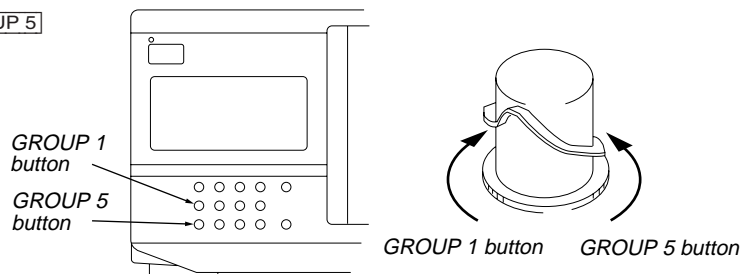
SECTION 5 MECHANICAL ADJUSTMENTS

Perform the following steps before carrying out adjustments.

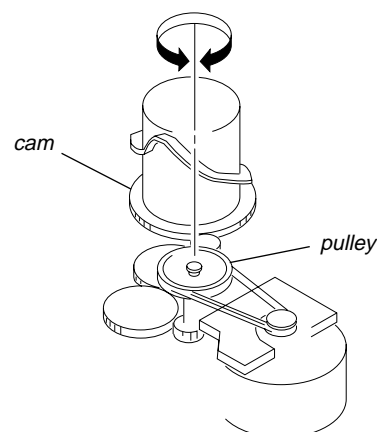
1. Turn ON the power of the unit, set disc to disc table No. 92, and perform chucking.
2. Turn OFF the power.
3. Remove the case.
4. While pressing the **STOP** button, turn ON the **I/⏻** button. The test mode is set.
5. The **I/⏻** button LED (STANDBY) starts blinking. (Test mode)



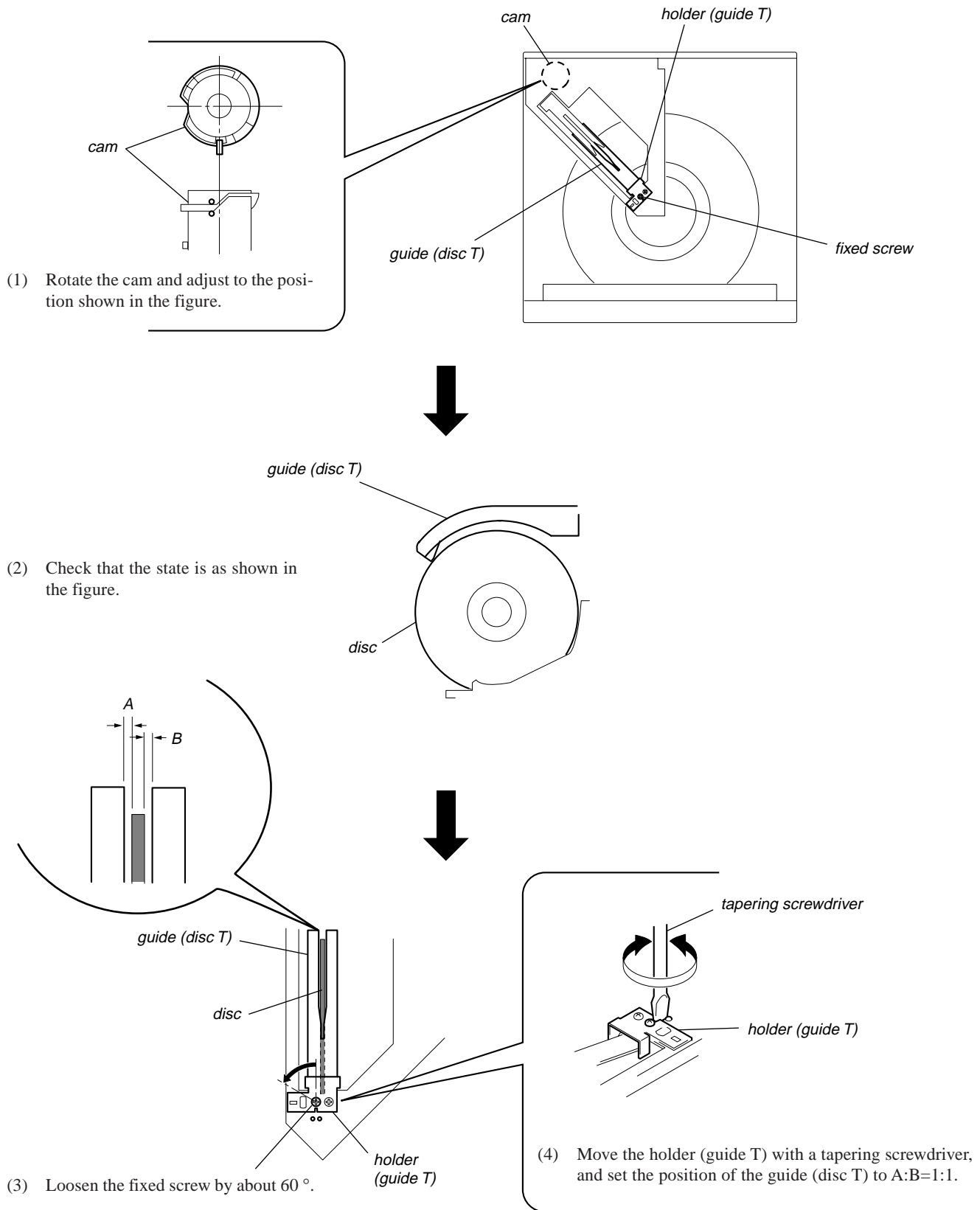
Note 1: The cam will start rotating when the **GROUP 1** or **GROUP 5** button is pressed continuously in the test mode.



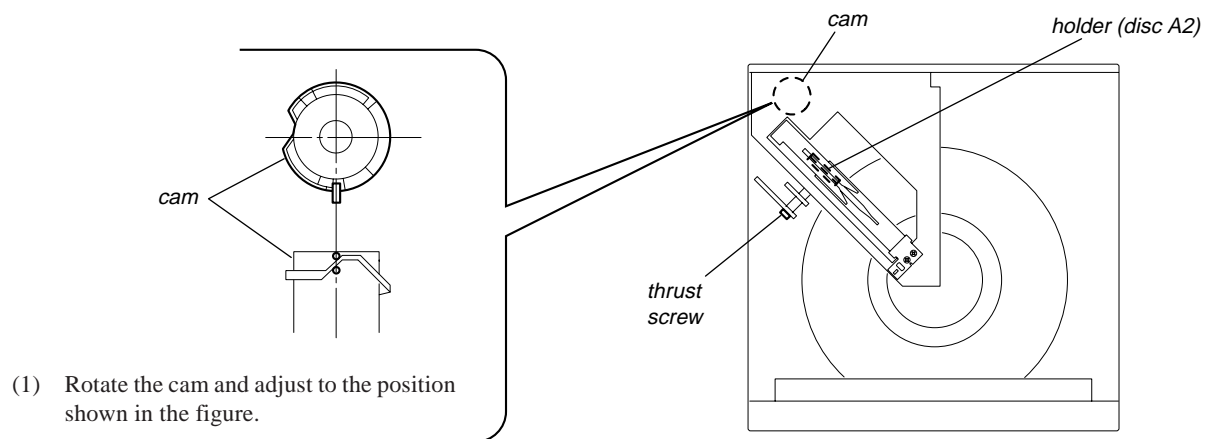
Note 2: If the power cannot be supplied, the cam can be rotated by rotating the pulley with your finger.



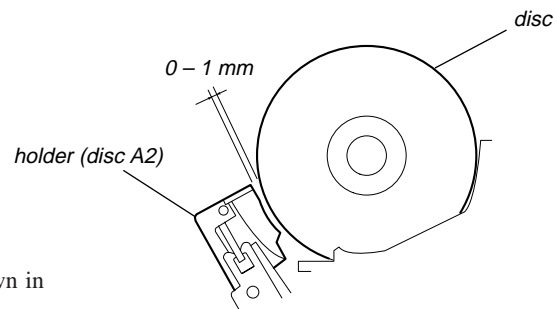
GUIDE (DISC T) ALIGNMENT



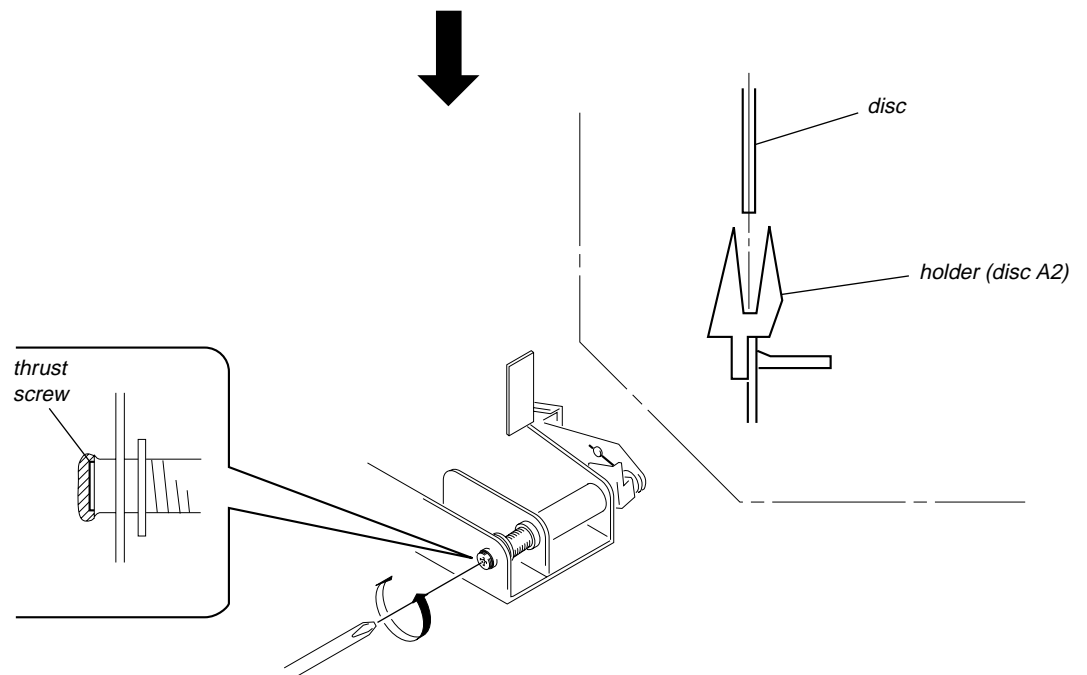
HOLDER (DISC A2) ALIGNMENT




- (1) Rotate the cam and adjust to the position shown in the figure.



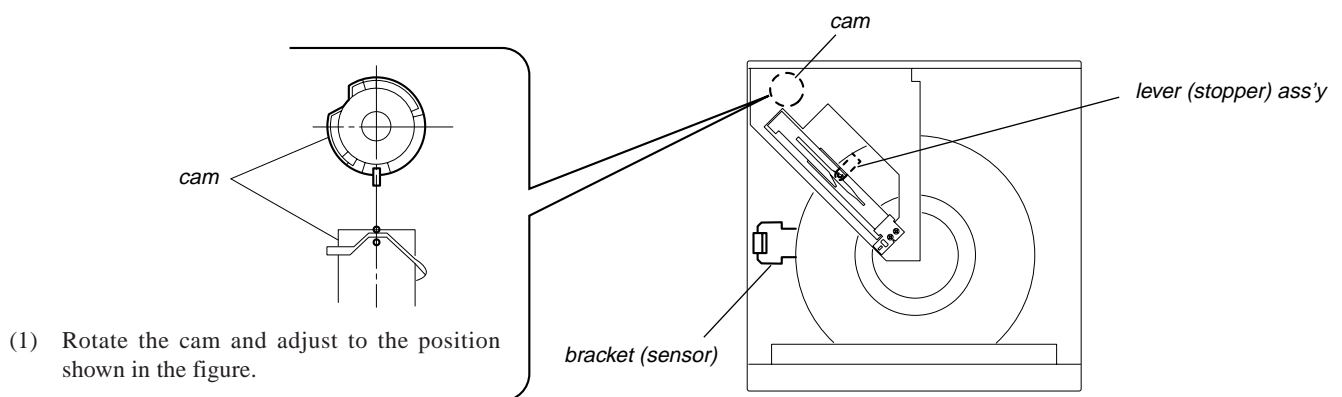
- (2) Check that the state is as shown in the figure.



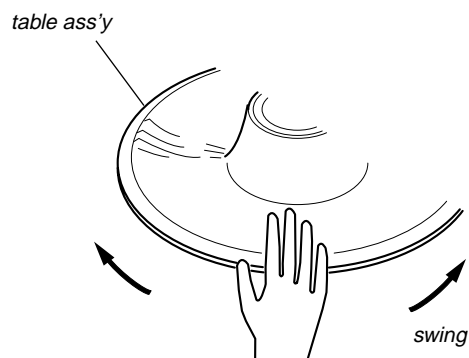
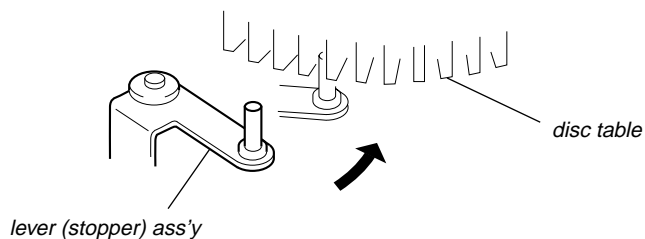
- (3) After applying suitable locking compound to the  part, rotate the thrust screw until the holder (Disc A2) comes to the center of the disc.

SENSOR ALIGNMENT

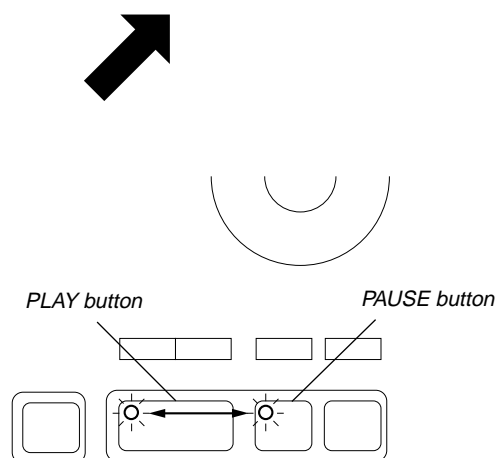
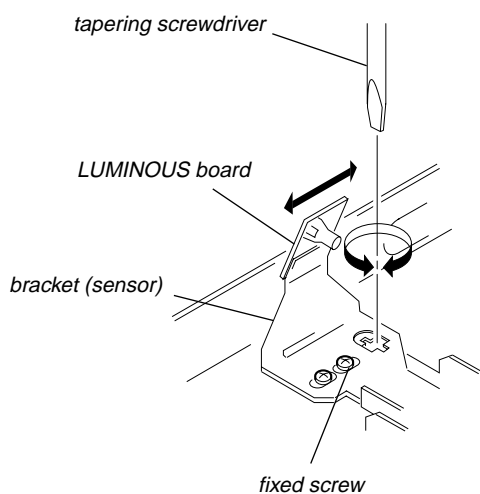
Perform this adjustment after the “holder (disc A2) adjustment”.
If the disc table swings to the left and right just before the disc is
chucked, perform the following adjustment.



- (2) Check that the lever (stopper) ass'y secures the disc table as shown in the figure.

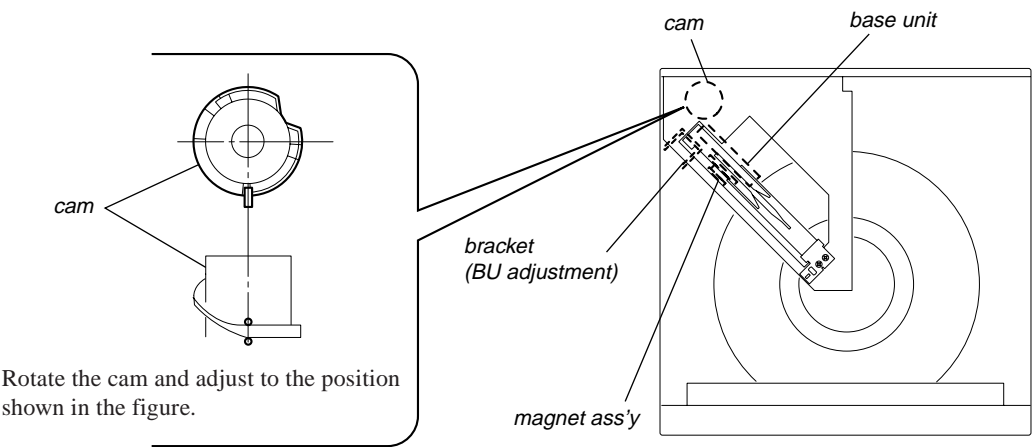
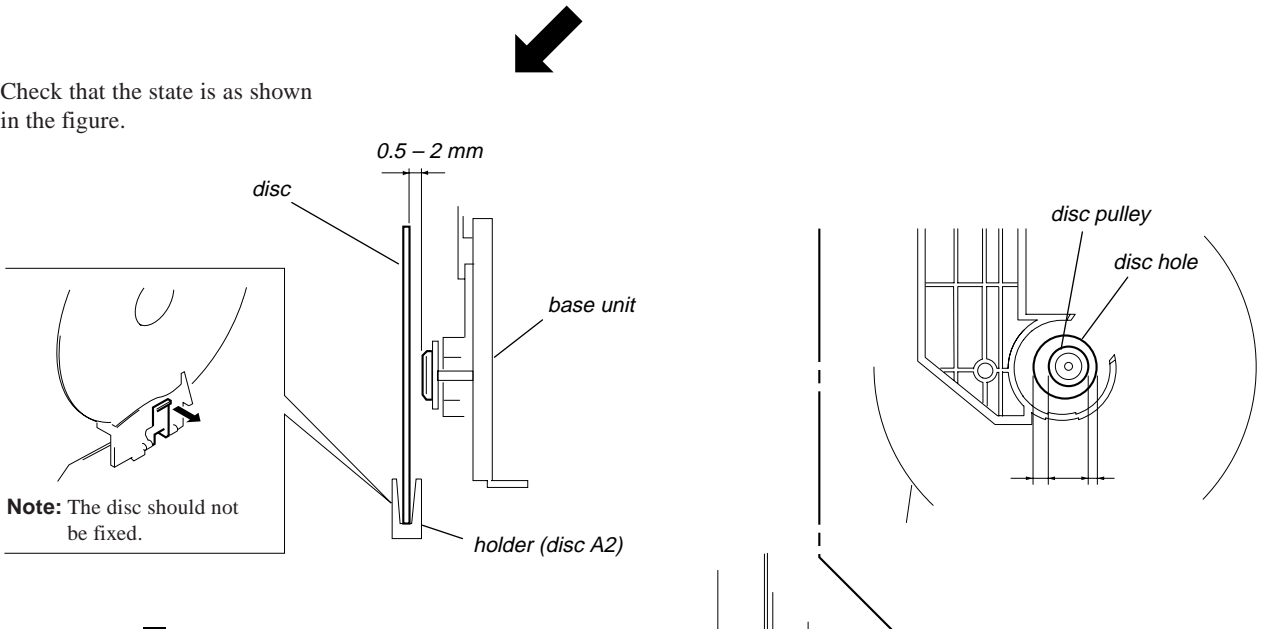
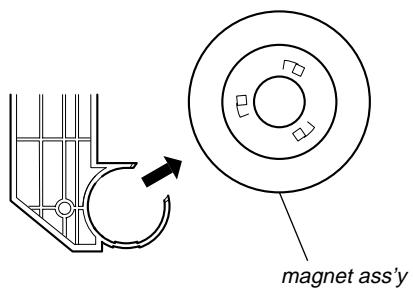
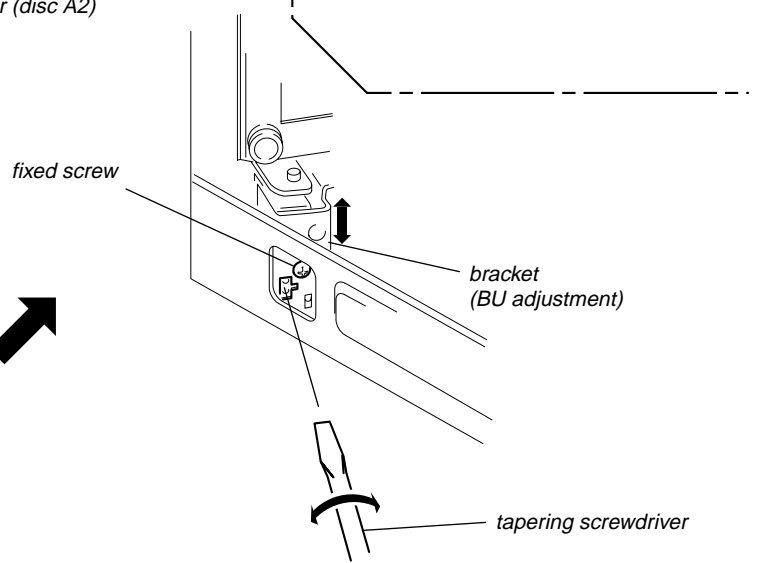


- (4) Moving the disc table right and left with a hand after the screw is fixed, the table will move by the play of a disc table. If the LEDs light up alternately, the adjustment will be performed correctly.

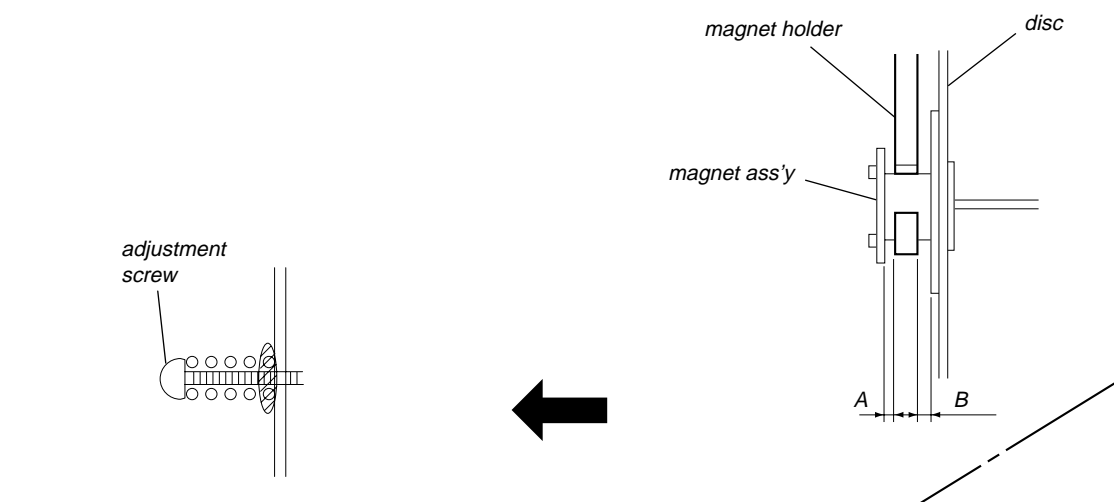
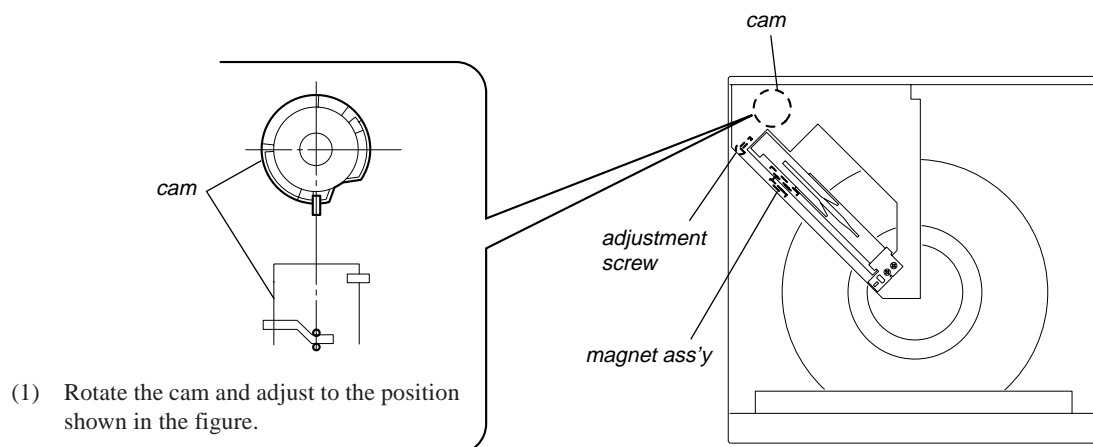


- (3) Loosen the fixed screw by 60° to 90°, and use a tapering screwdriver to adjust the screw as shown in the figure. Move the bracket (sensor) with the tapering screwdriver little by little, and fix the fixed screw at where the play button's LED (green) is switched to the pause button's LED (orange) (or its reverse).

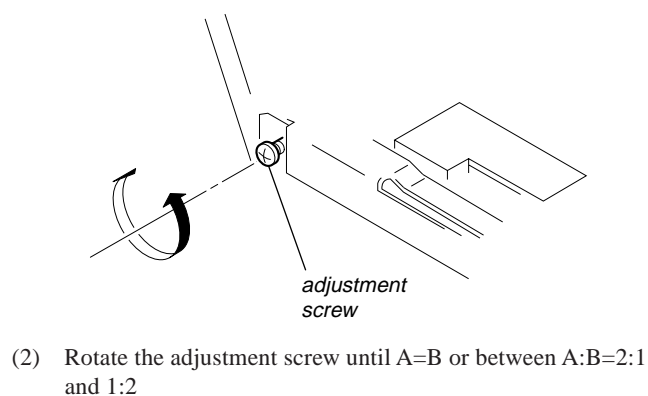
PULLEY AND DISC CENTER HOLE ALIGNMENT

- (1) Rotate the cam and adjust to the position shown in the figure.
- 
- (2) Check that the state is as shown in the figure.
- 
- Note:** The disc should not be fixed.
- (3) Remove the Magnet ass'y.
- 
- (4) Loosen the fixed screw by 60° to 90°, and move and adjust the bracket (BU adjustment) up and down using a tapering screwdriver so that the positions of the disc hole and disc pulley become A=B or between A:B=2:1 and 1:2.
- 

MAGNET ASS'Y ALIGNMENT



- (3) Apply suitable locking compound to the  part after adjusting.

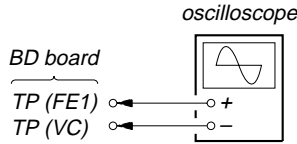


SECTION 6 ELECTRICAL ADJUSTMENTS

Note:

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10M Ω impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

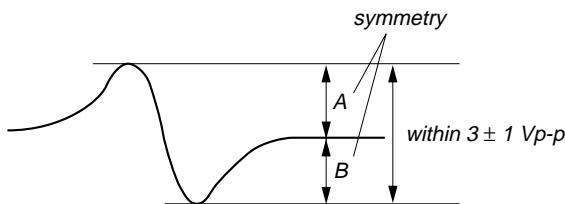
S-Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FE1) on BD board.
2. Connect test point TP (ADJ) on MAIN board to ground with lead wire.
3. Turn $\left[\frac{1}{\text{U}} \right]$ button on to set the ADJ mode.
4. Put disc (YEDS-18) in and playback.
Press the $\left[\text{CHECK} \right]$ button.
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3 ± 1 Vp-p.

S-curve waveform

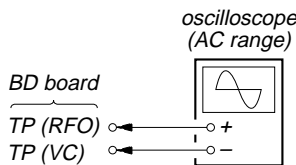


6. After check, remove the lead wire connected in step 2.

Note:

- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

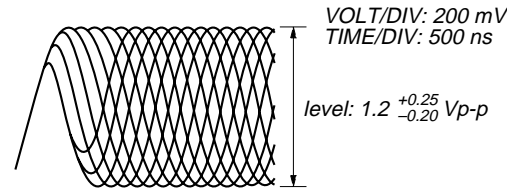


Procedure :

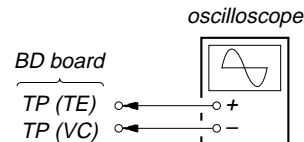
1. Connect oscilloscope to test point TP (RFO) on BD board.
2. Turn $\left[\frac{1}{\text{U}} \right]$ button on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: A clear RF signal waveform means that the shape “ \diamond ” can be clearly distinguished at the center of the waveform.

RF signal waveform



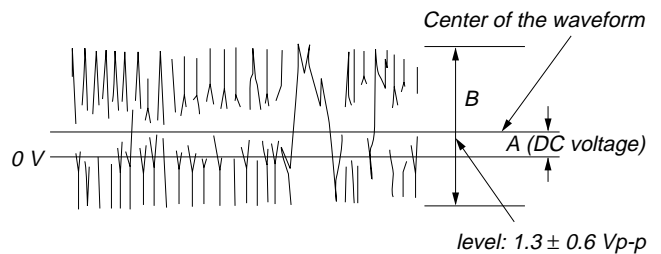
E-F Balance Check



Procedure :

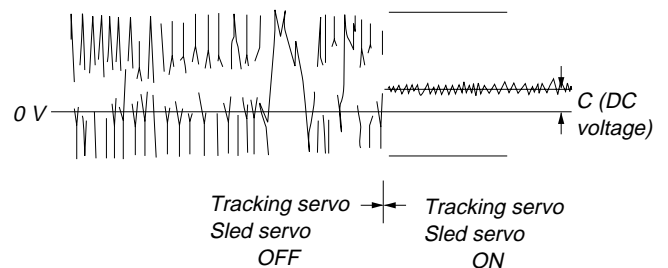
1. Connect oscilloscope to test point TP (TE) on BD board.
2. Connect the test point TP (ADJ) on MAIN board to the ground with a lead wire.
3. Turn the $\left[\frac{1}{\text{U}} \right]$ button on to set the ADJ mode.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the $\left[\text{GROUP 3} \right]$ button. (The tracking servo and the sleding servo are turned OFF.)
6. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
Confirm the following :
 $A/B \times 100 = \text{less than } \pm 22\%$

Traverse waveform



7. Press the $\left[\text{GROUP 8} \right]$ button. (The tracking servo and sleding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

Traverse waveform

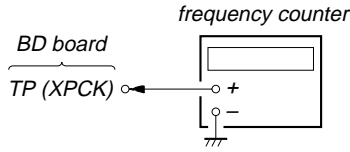


8. Disconnect the lead wire of TP (ADJ) connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to test point TP (XPCK) with lead wire.



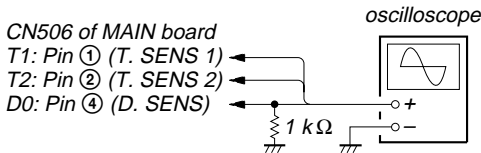
2. Turn button on.
3. Put the disc (YEDS-18) in to play the number five track.
Confirm that reading on frequency counter is 4.3218MHz.

Disc Sensor Adjustment

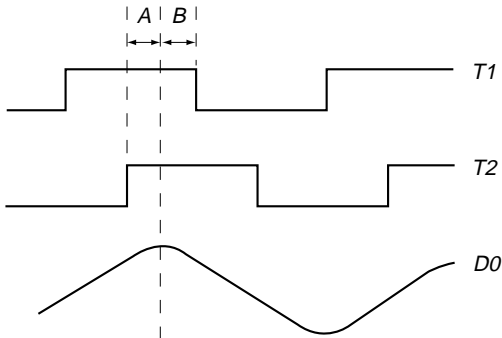
Perform this adjustment after completing all adjustments of the mechanism section.

If not performed accurately, the presence of the disc may not be detected properly.

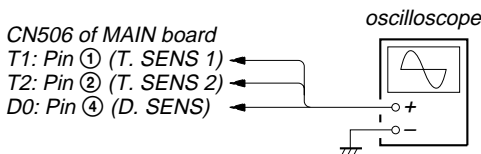
Connection 1:



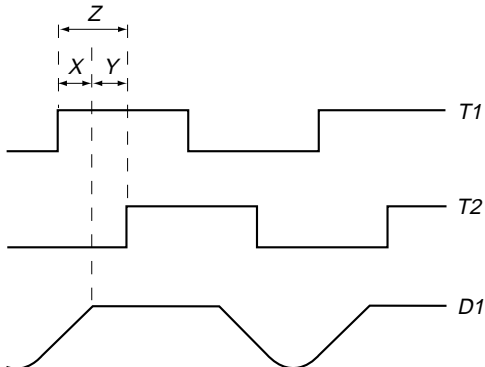
Waveform 1:



Connection 2:

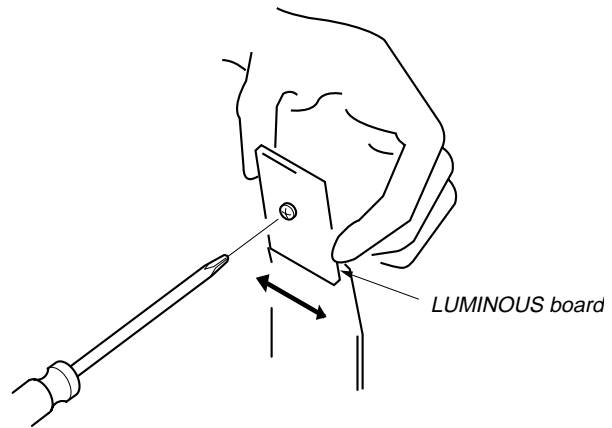


Waveform 2



Procedure:

1. Connect the oscilloscope to Pins ①, ②, and ④ of CN506 of the MAIN board. Also connect a 1 kΩ resistor to Pin ④ at the same time. (Connection 1)
2. Check that no discs are loaded in the unit, and press the button while pressing the **INPUT** button.
3. The rotary table will continue rotating in the clockwise direction.
4. Observe the waveform at that time on the oscilloscope.
5. Loosen the screw securing the LUMINOUS board slightly.
6. Slide the LUMINOUS board to the left and right so that the peak of the D0 waveform is at the center between the descending point of the T1 waveform and ascending point of the T2 waveform. (Waveform 1) After adjusting, apply locking compound.



7. Disconnect the resistor connected to Pin ④ of CN506 of the MAIN board. (Connection 2)
8. Observe the waveform on the oscilloscope. (Waveform 2)
9. Adjust RV501 of the MAIN board so that the waveform on the oscilloscope satisfies the following adjustment value.
10. After the adjustment, load a disc only in slit 1, close the front cover, and press the button to turn off the power.
11. Press the button while pressing the **PUSH ENTER** button to turn on the power.
12. If the rotary table makes round, and "YES" is displayed on the fluorescent indicator tube after it stops, it means that the adjustment has been performed properly.

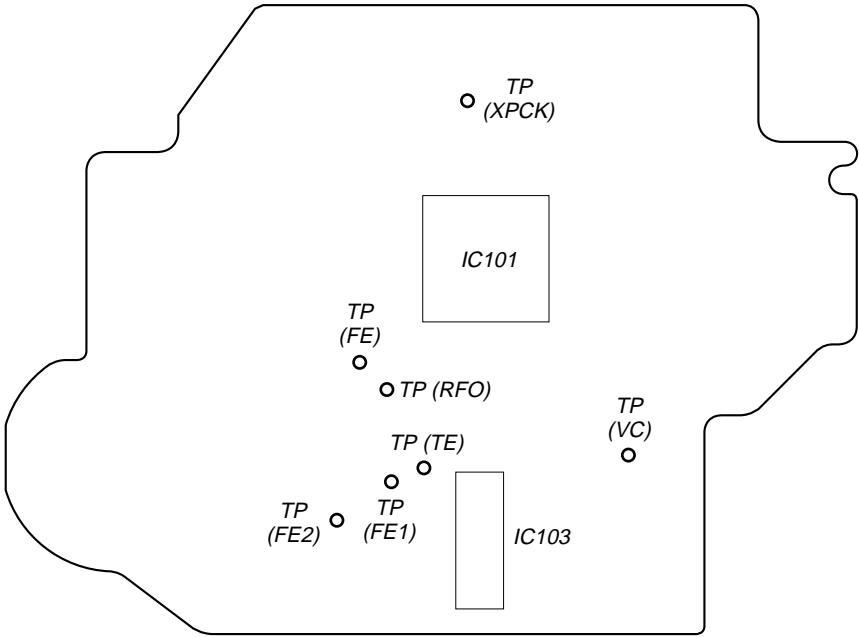
Adjustment value:

At the shoulder part of waveform D1, T1 becomes H and T2 becomes L, and at the same time, the Y width must not be smaller than 1/4 of the Z width.

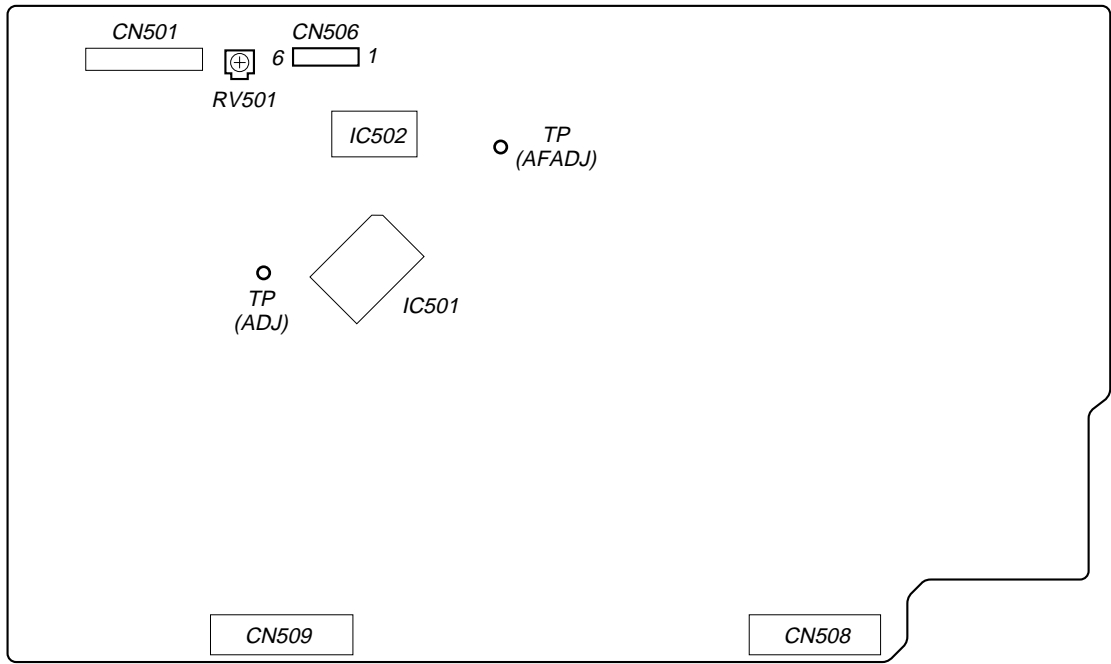
In order to satisfy this value more easily, adjust so that X=Y approximately and observe the deviation of the waveform.

Adjustment Location:

[BD BOARD] – Side B –

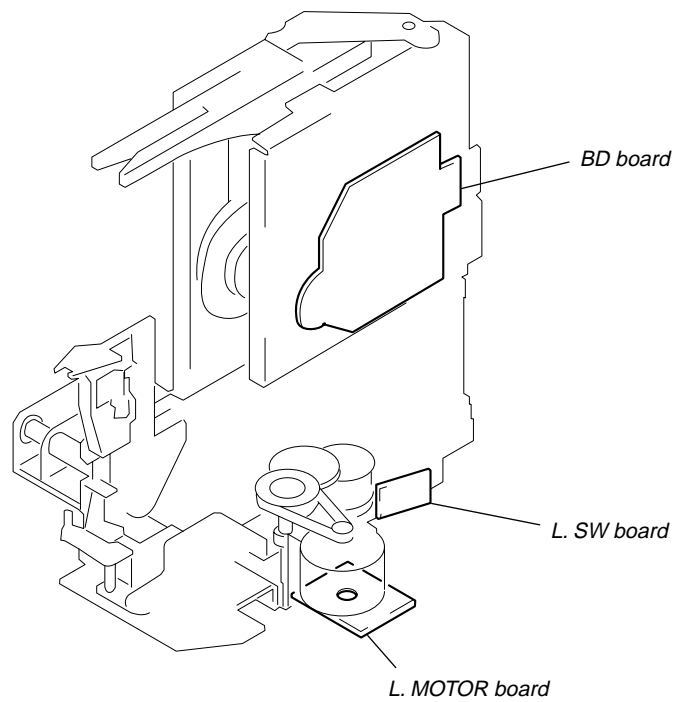
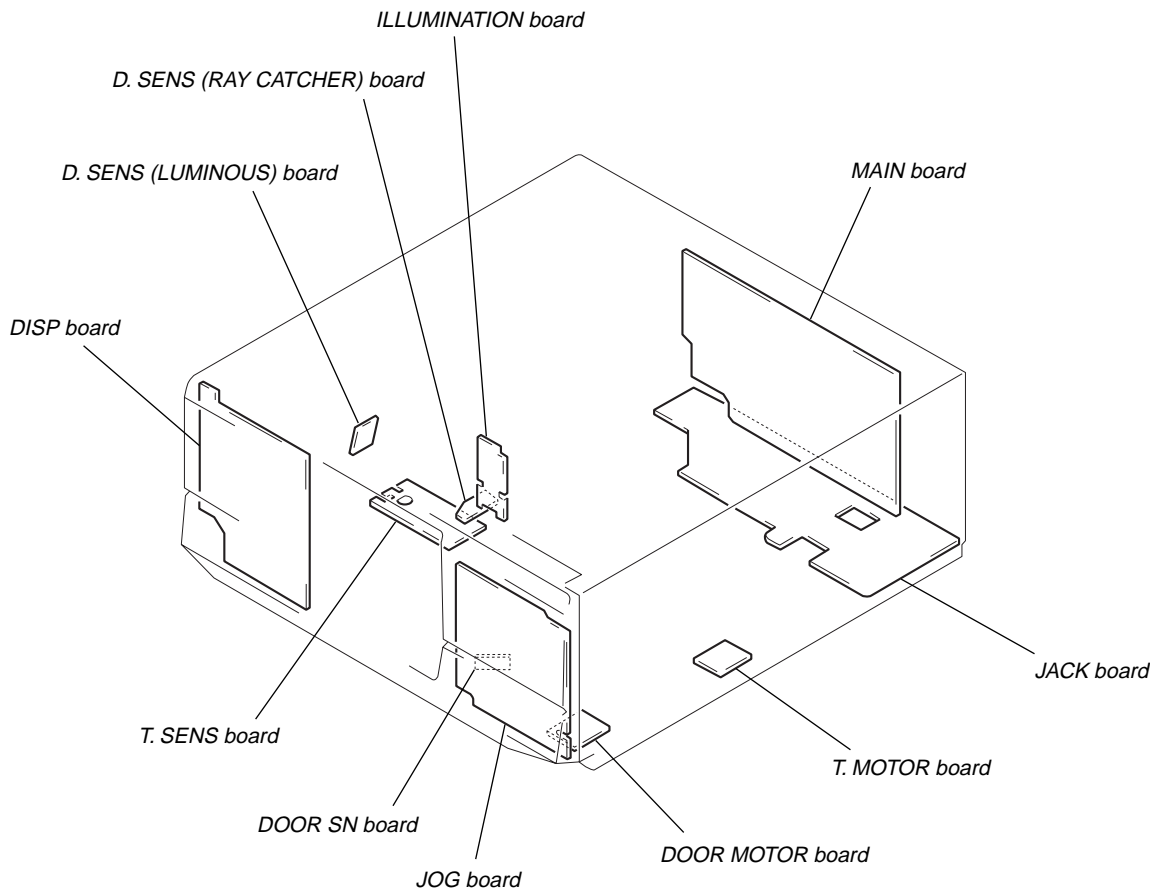


[MAIN BOARD] – Component Side –



SECTION 7 DIAGRAMS

• Circuit Boards Location



7-1. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}W$ or less unless otherwise specified.
- \triangle : internal component.
- : panel designation.

Note:





The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

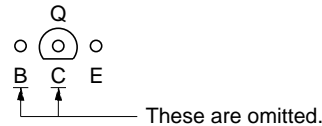
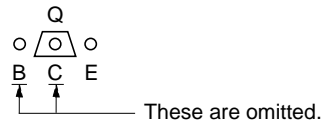
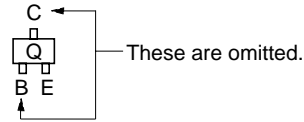
Note:

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B + : B+ Line.
- B - : B- Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark: PLAY
- Voltages are taken with a VOM (Input impedance $10\text{ M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- \Rightarrow : CD
- \Rightarrow : digital out
- Abbreviation
- AED : North European
- AUS : Australian model.
- CND : Canadian model.
- E2 : 120 V AC Area in E model.
- E3 : 240 V AC Area in E model.
- SP : Singapore model.

Note on Printed Wiring Boards:

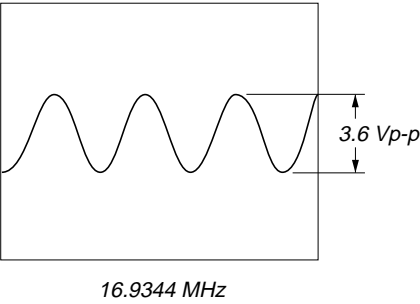
-  : parts extracted from the component side.
-  : parts extracted from the conductor side.
- \triangle : internal component.
-  : Pattern from the side which enables seeing.
-  : Solder bridge.
- Indication of transistor.



• Waveforms

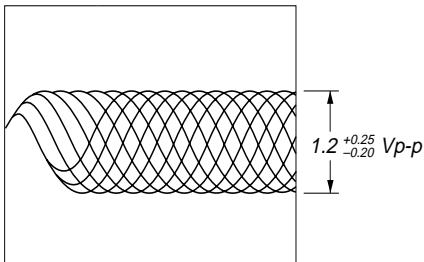
– BD Section –

❶ IC101 ⑥⑥ (XTAL)



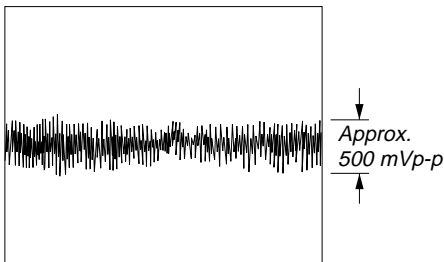
❷ IC101 ⑤① (RFAC)

500 mV/DIV, 1 μs/DIV



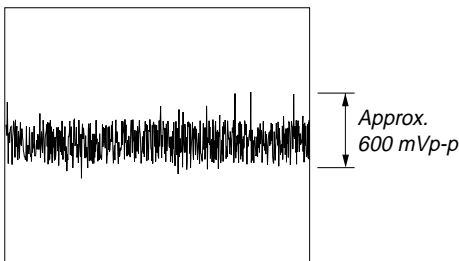
❸ IC101 ④① (TE)

200 mV/DIV, 1 μs/DIV



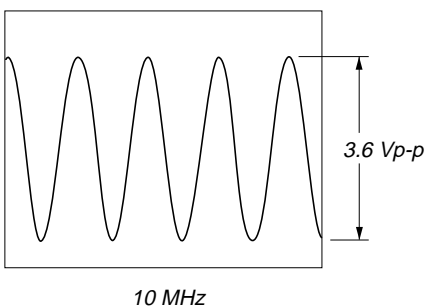
❹ IC101 ③⑨ (FE)

200 mV/DIV, 10 μs/DIV



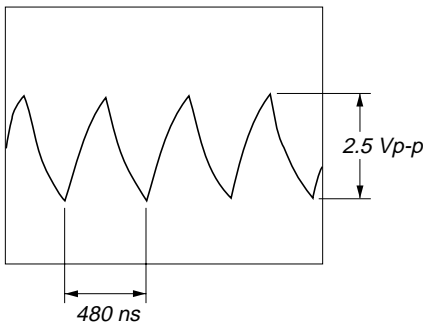
– MAIN Section –

❶ IC501 ③① (EXTAL)



– PANEL Section –

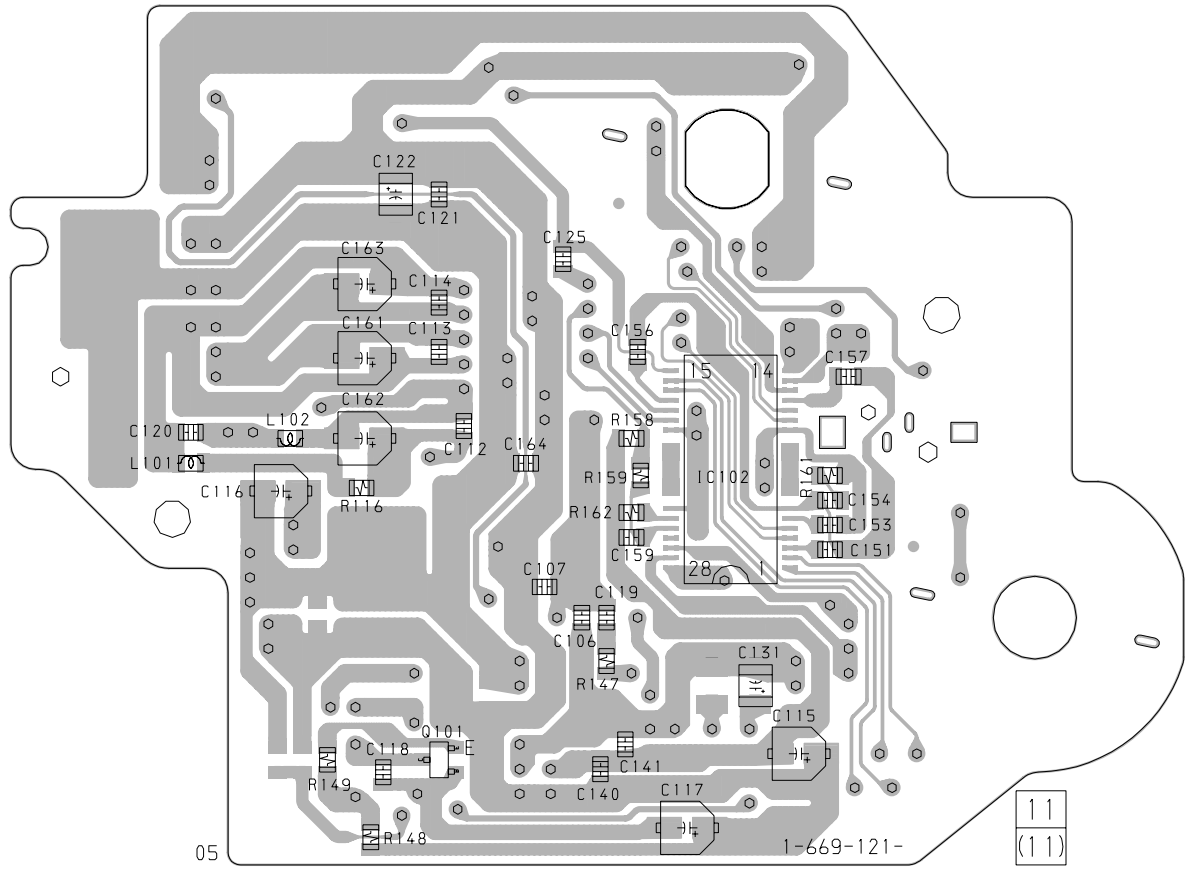
❶ IC701 ⑤⑧ (OSC0)



7-2. PRINTED WIRING BOARD – BD Section –

- See page 22 for Circuit Boards Location.

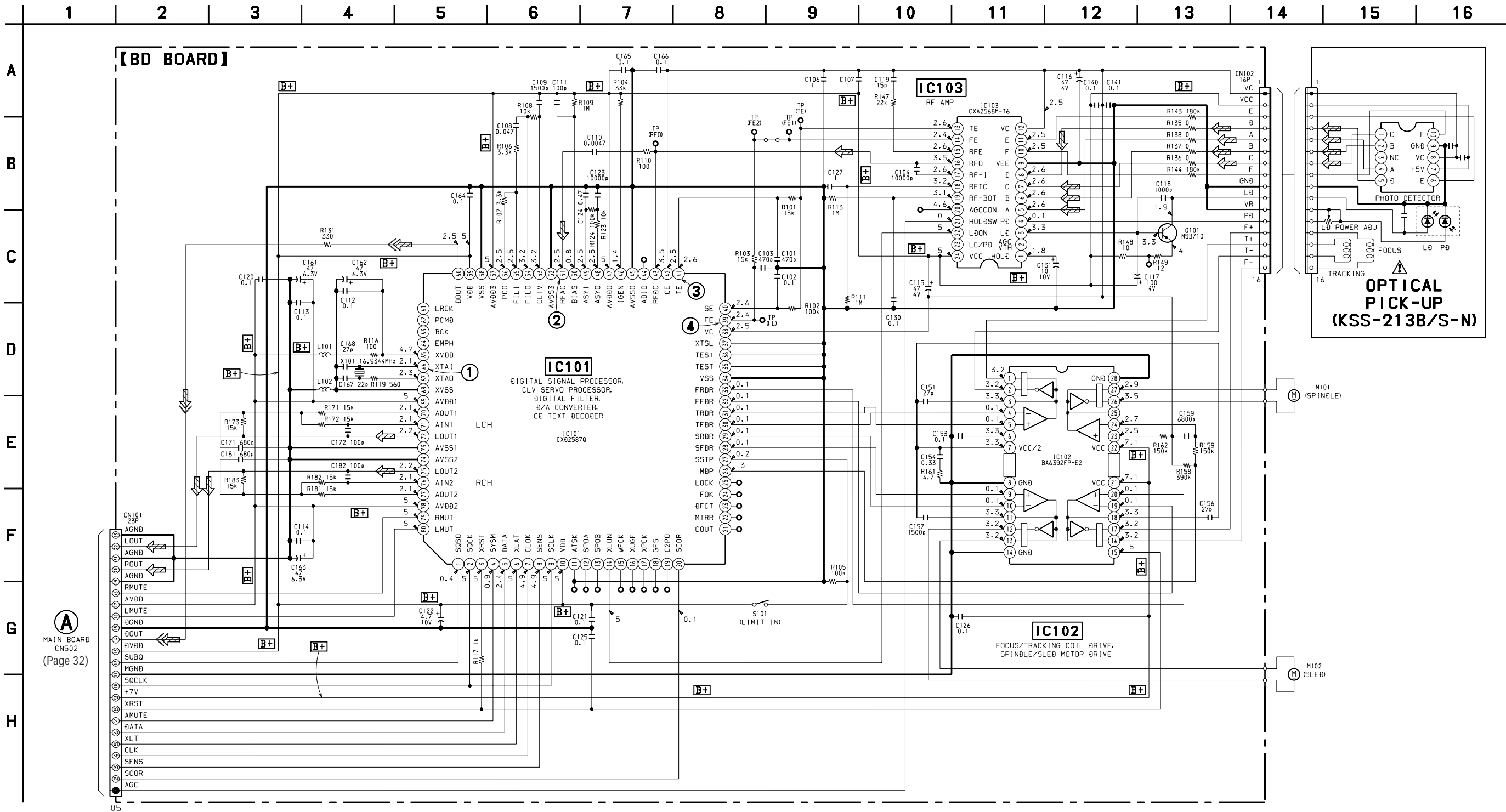
【BD BOARD】(SIDE A)



[illegible]

7-3. SCHEMATIC DIAGRAM – BD Section –

• See page 24 for Waveforms. • See page 44 for IC Block Diagrams.



- no mark: PLAY
- Signal path.
- ◻ : CD
- ◻ : digital out

Note:
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

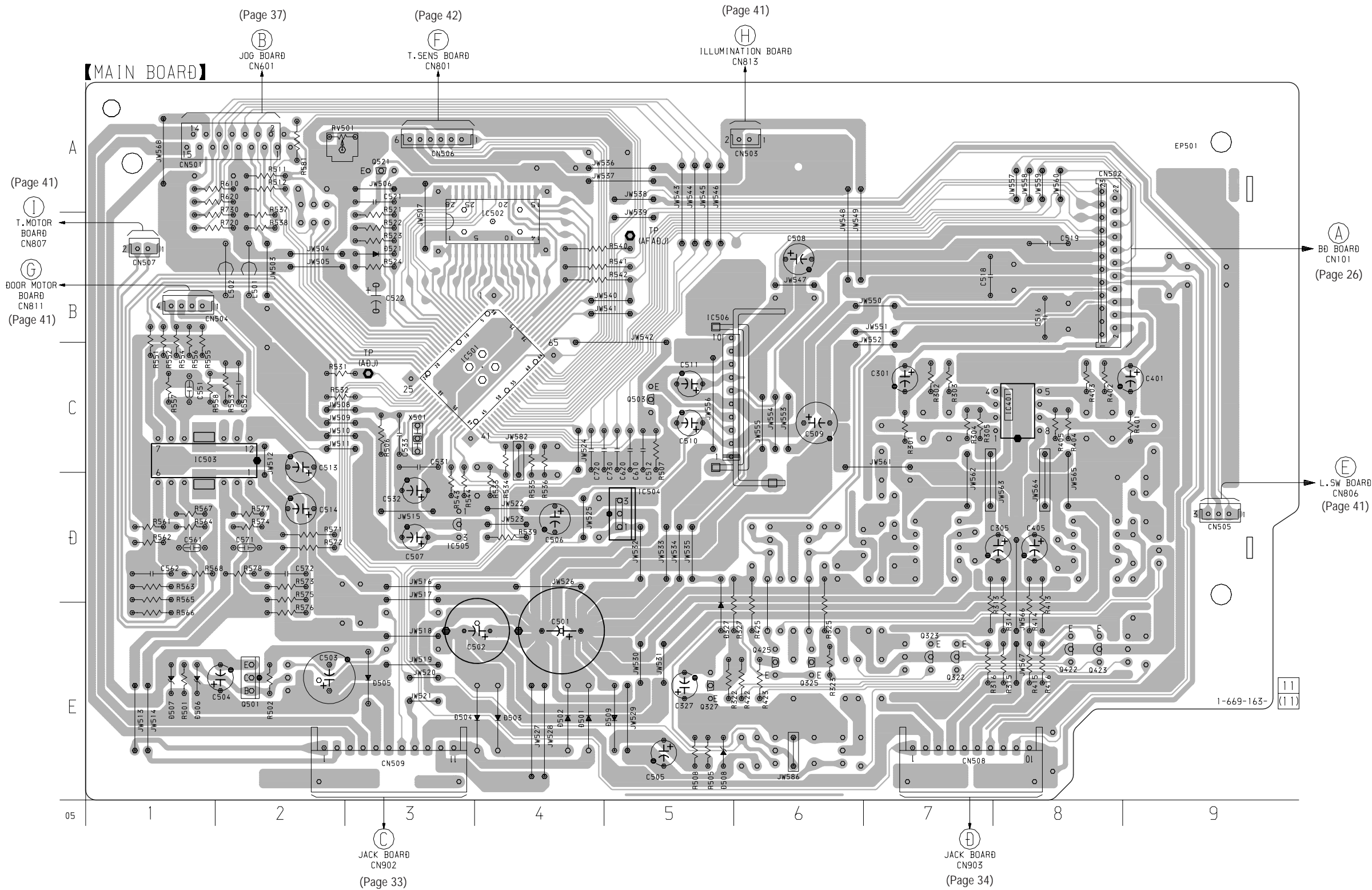
Note:
Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-4. PRINTED WIRING BOARD – MAIN Section –

• See page 22 for Circuit Boards Location.

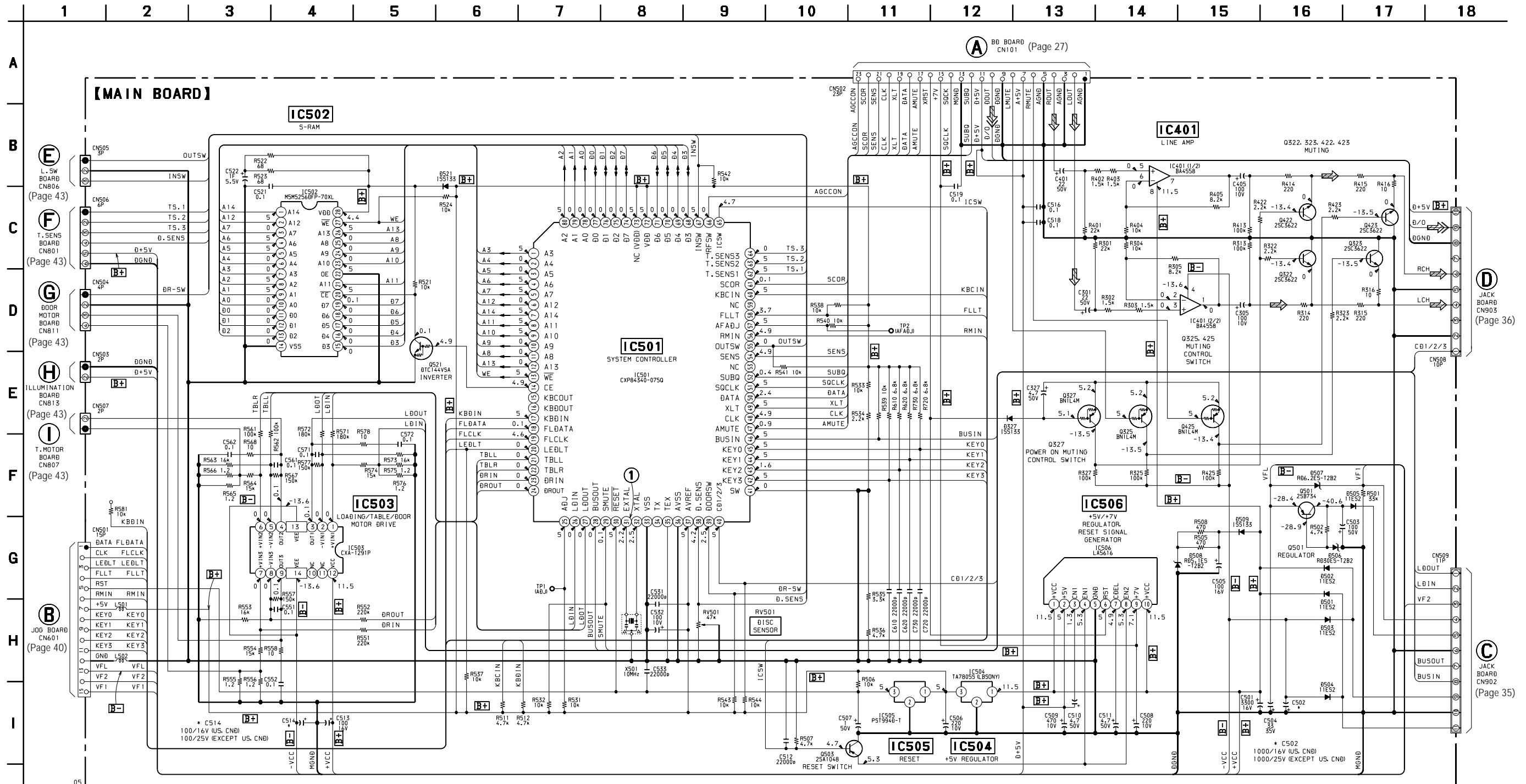
• Semiconductor Location

| Ref. No. | Location |
|----------|----------|
| D327 | E-5 |
| D501 | E-4 |
| D502 | E-4 |
| D503 | E-4 |
| D504 | E-4 |
| D505 | E-3 |
| D506 | E-1 |
| D507 | E-1 |
| D508 | E-5 |
| D509 | E-5 |
| D521 | B-3 |
| IC401 | C-8 |
| IC501 | C-3 |
| IC502 | B-4 |
| IC503 | C-1 |
| IC504 | D-5 |
| IC505 | D-3 |
| IC506 | C-5 |
| Q322 | E-7 |
| Q323 | E-7 |
| Q325 | E-6 |
| Q327 | E-5 |
| Q422 | E-8 |
| Q423 | E-8 |
| Q425 | E-6 |
| Q501 | E-2 |
| Q503 | C-5 |
| Q521 | A-3 |



7-5. SCHEMATIC DIAGRAM – MAIN Section –

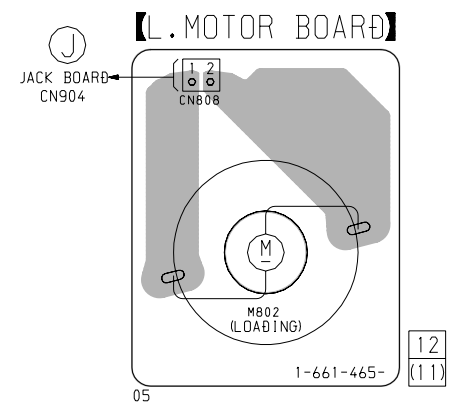
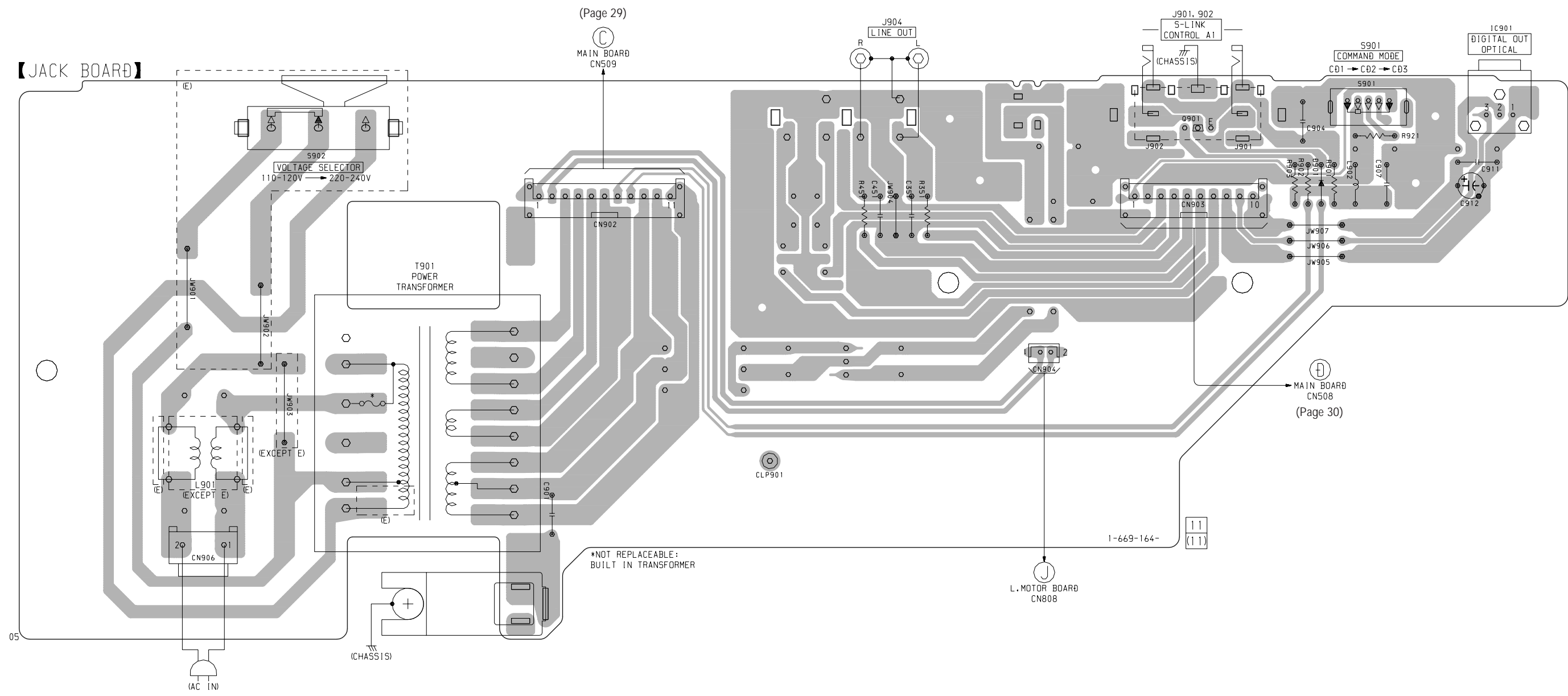
• See page 24 for Waveforms. • See page 45 for IC Block Diagrams.



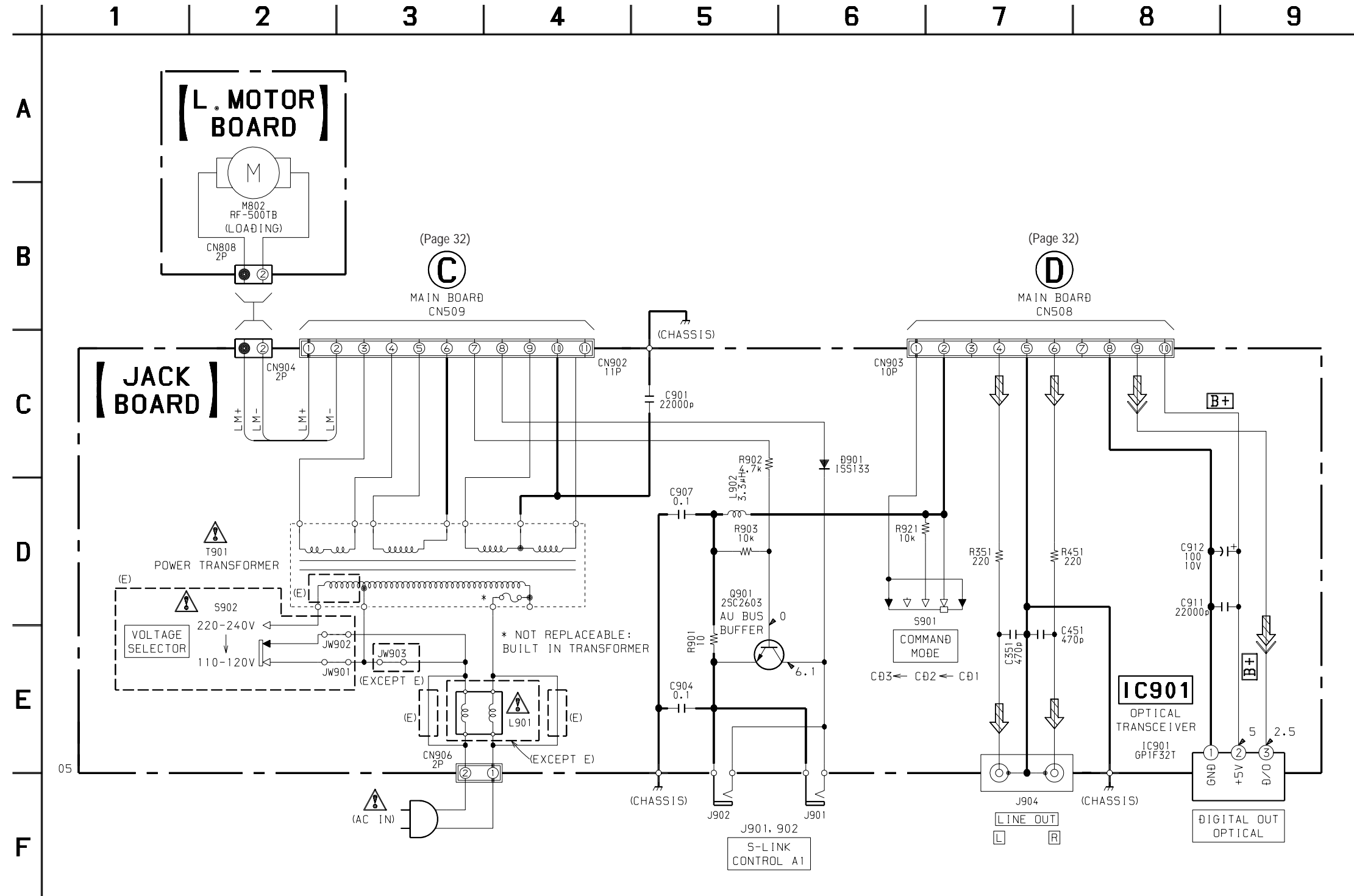
- no mark: PLAY
- Signal path.
 - ➡ : CD
 - ➡➡ : digital out

7-6. PRINTED WIRING BOARDS – JACK Section –

- See page 22 for Circuit Boards Location.

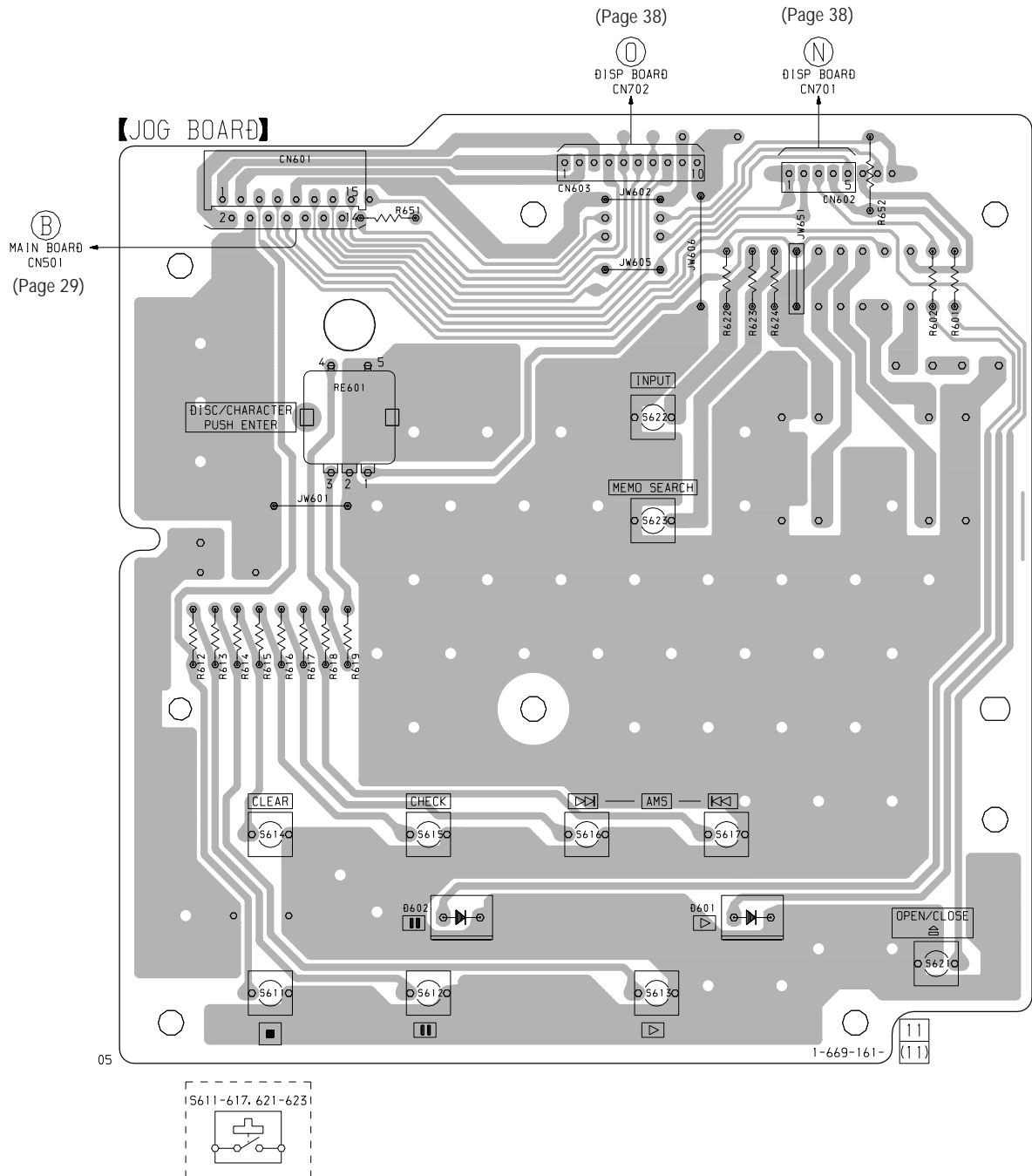


7-7. SCHEMATIC DIAGRAM – JACK Section –

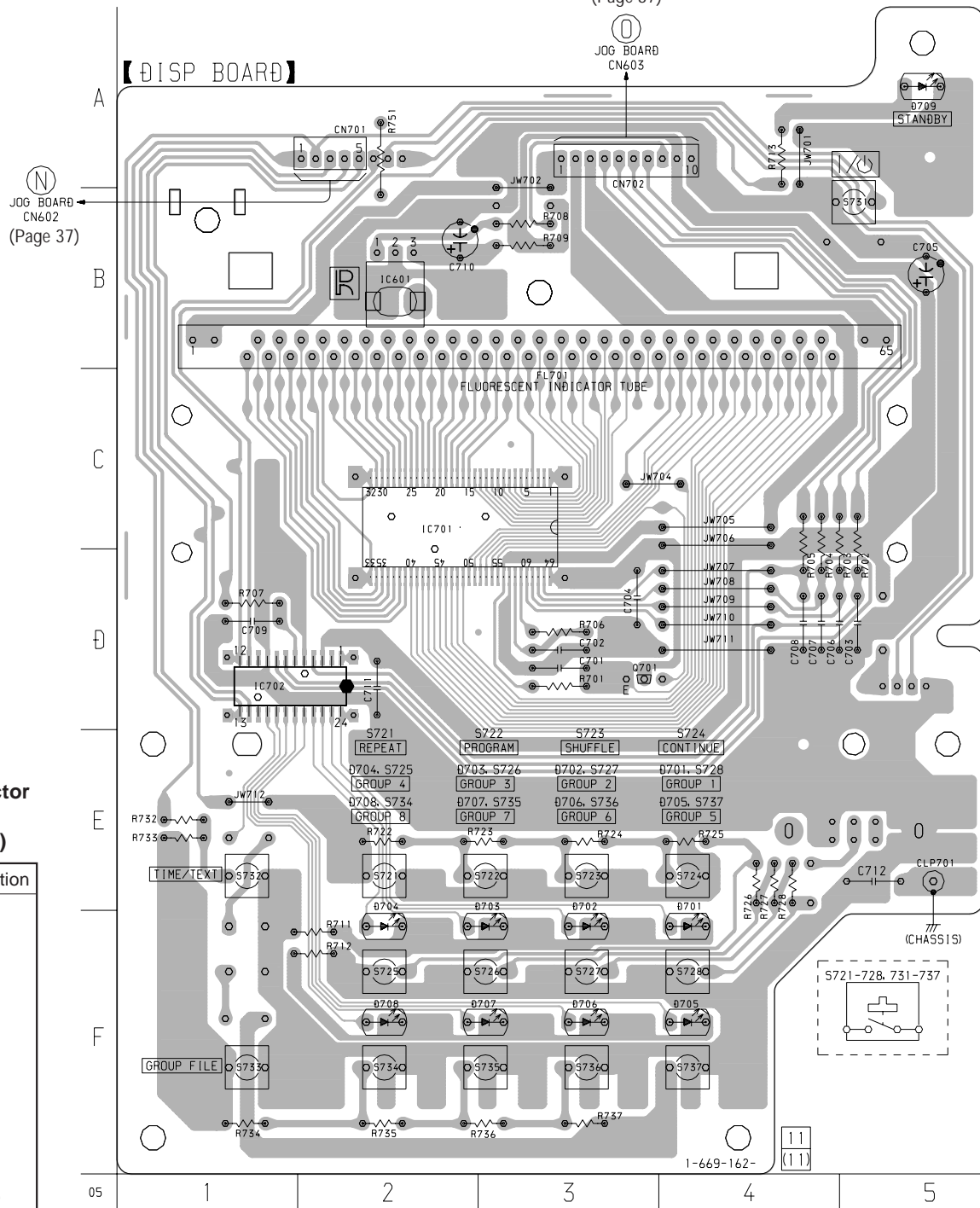


7-8. PRINTED WIRING BOARDS – PANEL Section –

- See page 22 for Circuit Boards Location.



(Page 37)



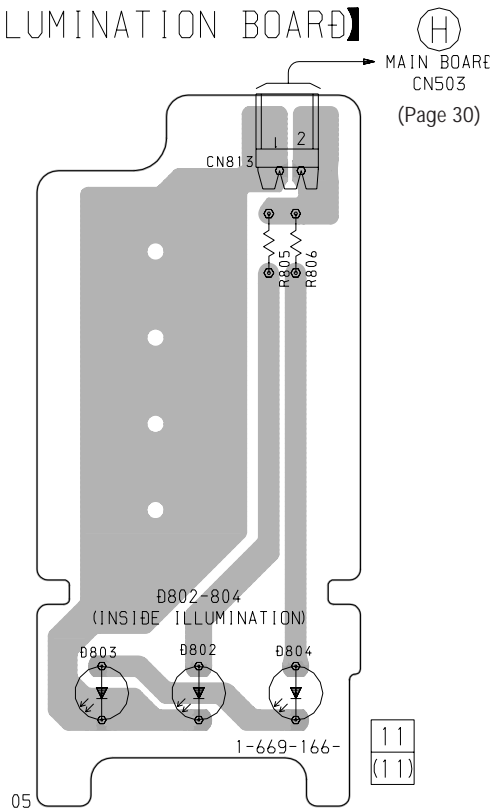
• Semiconductor Location (DISP Board)

| Ref. No. | Location |
|----------|----------|
| D701 | F-4 |
| D702 | F-3 |
| D703 | F-3 |
| D704 | F-2 |
| D705 | F-4 |
| D706 | F-3 |
| D707 | F-3 |
| D708 | F-2 |
| D709 | A-5 |
| IC601 | B-2 |
| IC701 | C-2 |
| IC702 | D-1 |
| Q701 | D-3 |

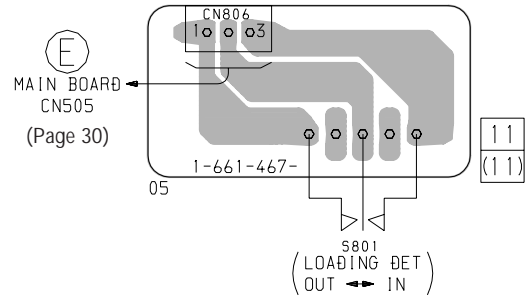
7-10. PRINTED WIRING BOARDS – SENSOR/MOTOR Section –

• See page 22 for Circuit Boards Location.

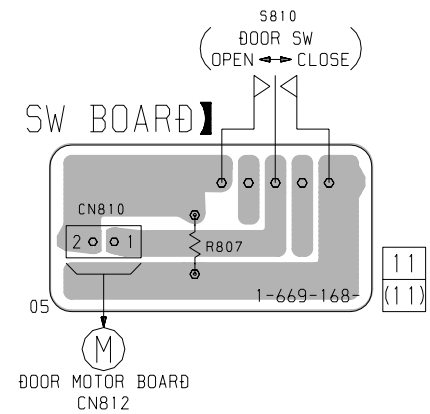
【ILLUMINATION BOARD】



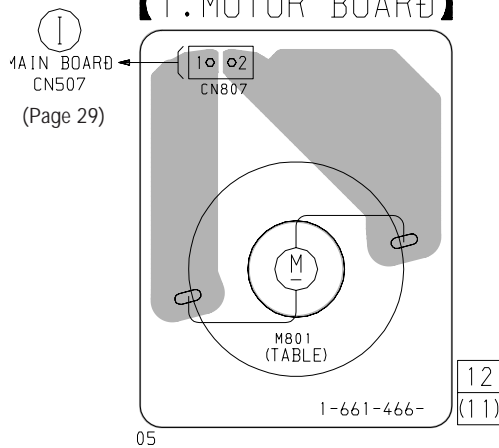
【L. SW BOARD】



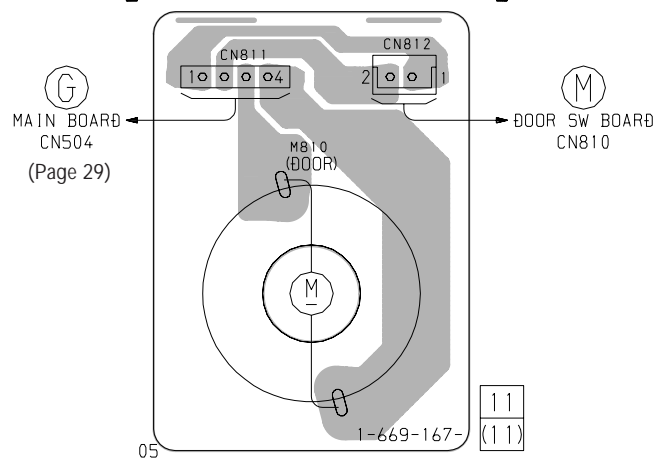
【DOOR SW BOARD】



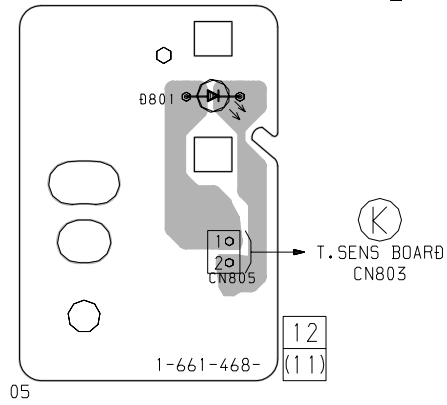
【T. MOTOR BOARD】



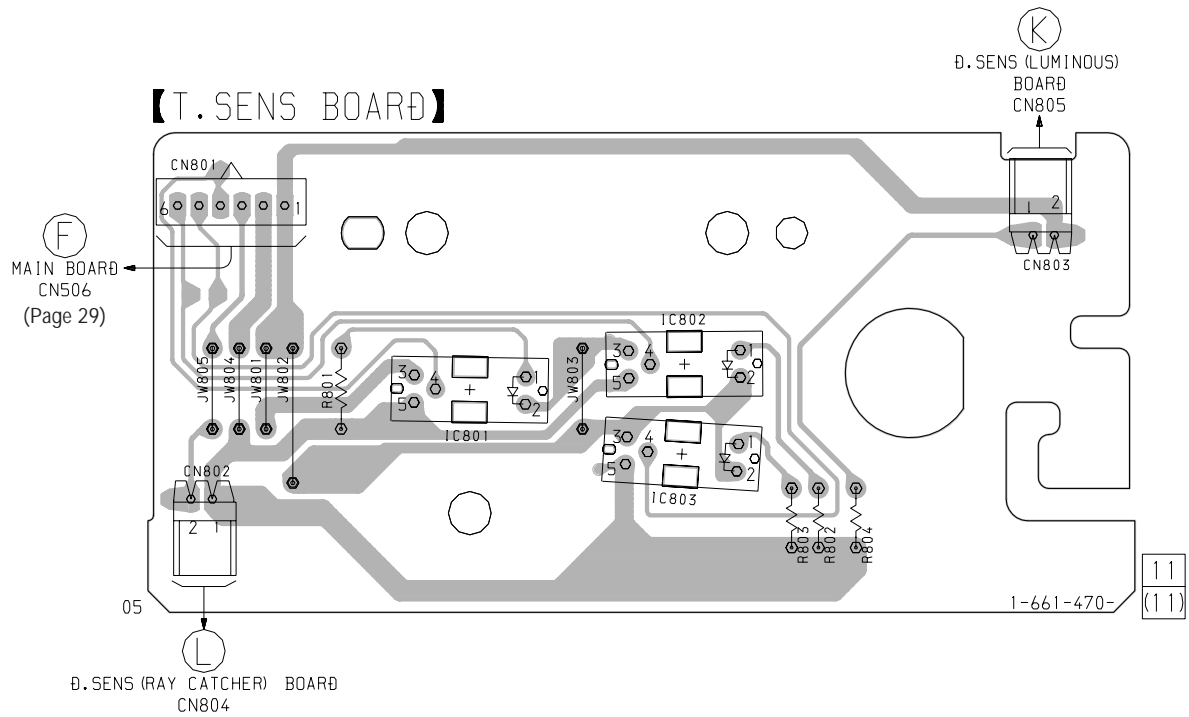
【DOOR MOTOR BOARD】



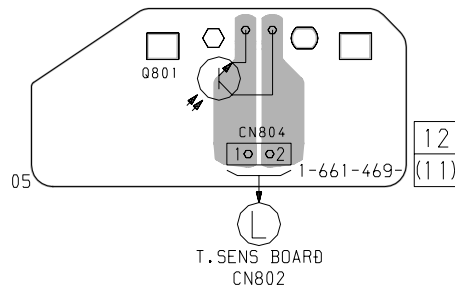
【D. SENS (LUMINOUS) BOARD】



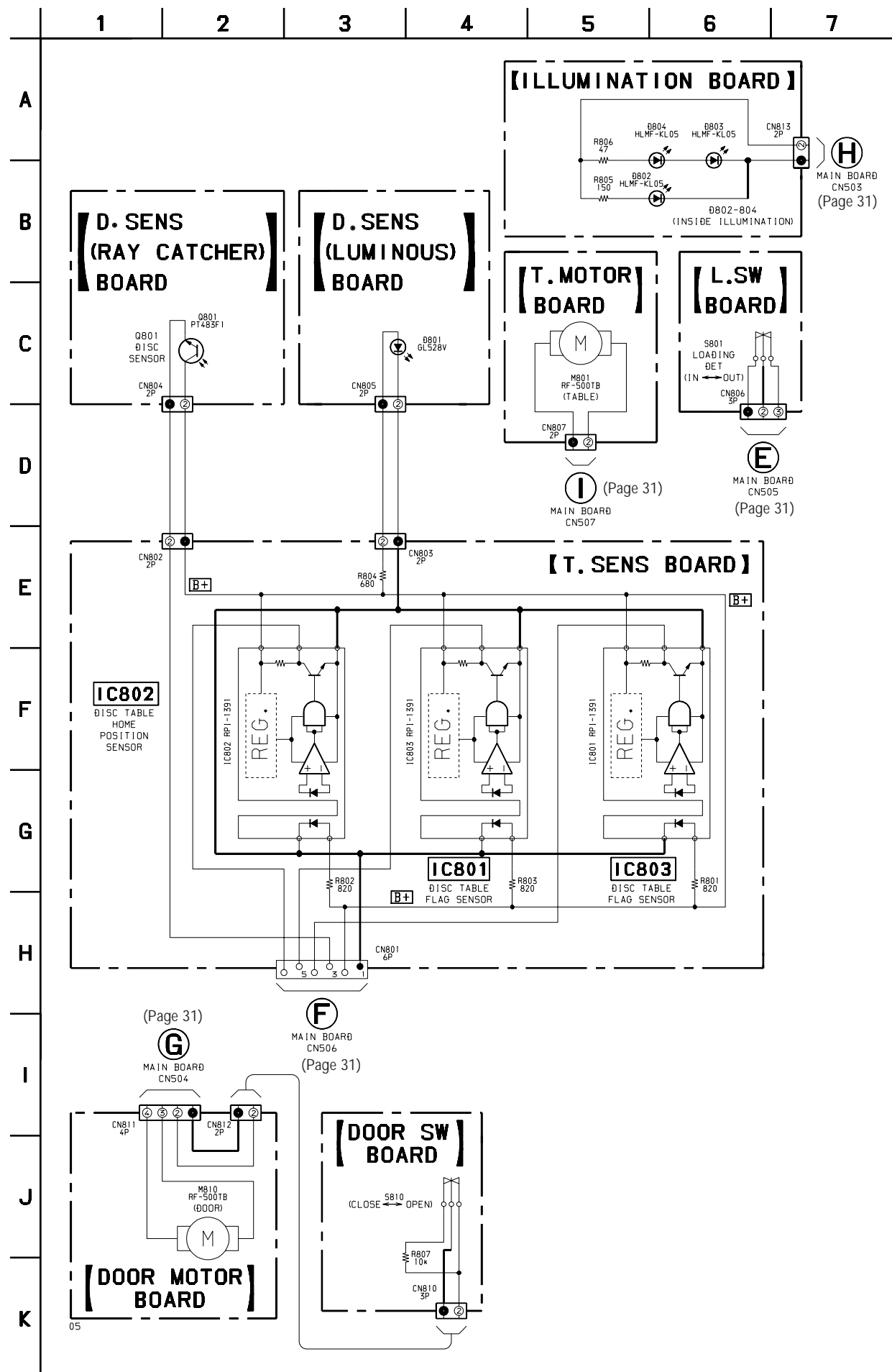
【T. SENS BOARD】



【D. SENS (RAY CATCHER) BOARD】



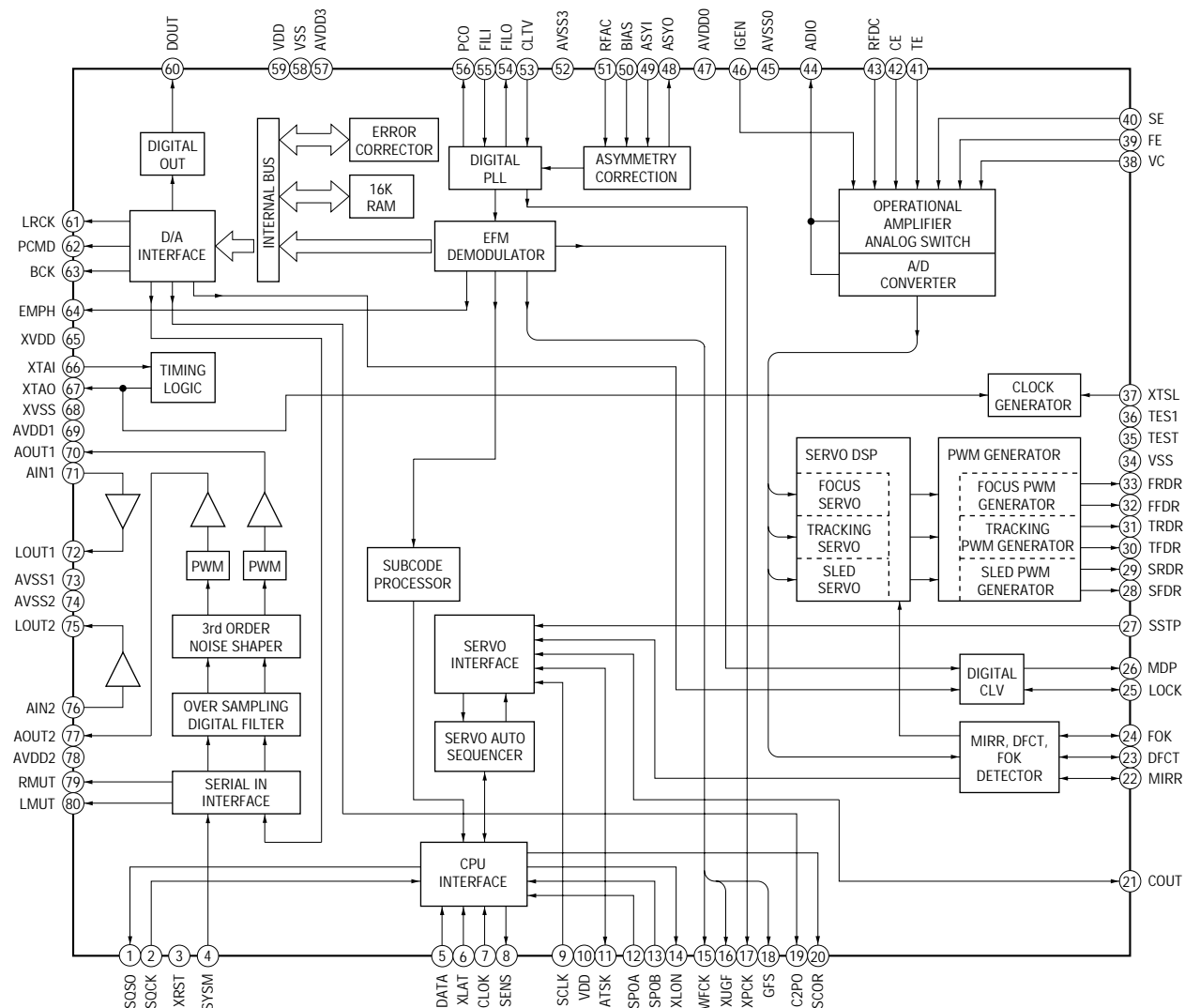
7-11. SCHEMATIC DIAGRAM – SENSOR/MOTOR Section –



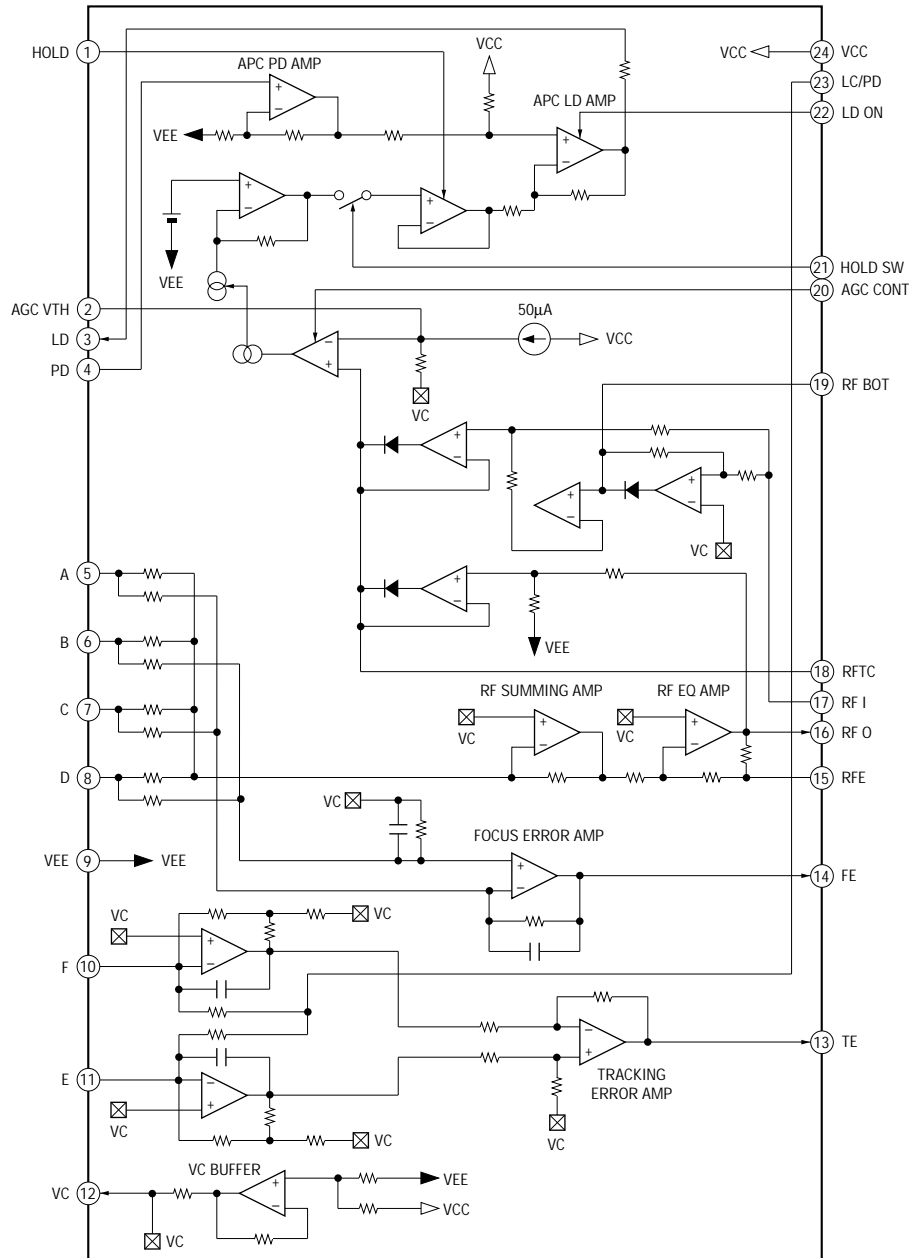
• IC Block Diagrams

– BD Board –

IC101 CXD2587Q

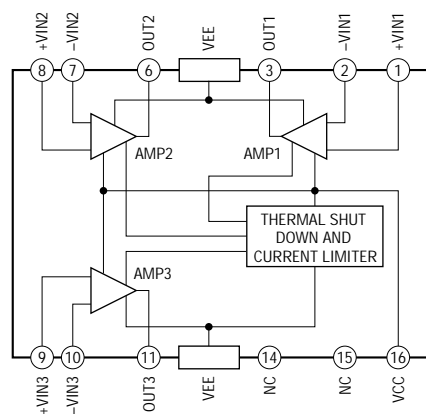


IC103 CXA2568M-T6

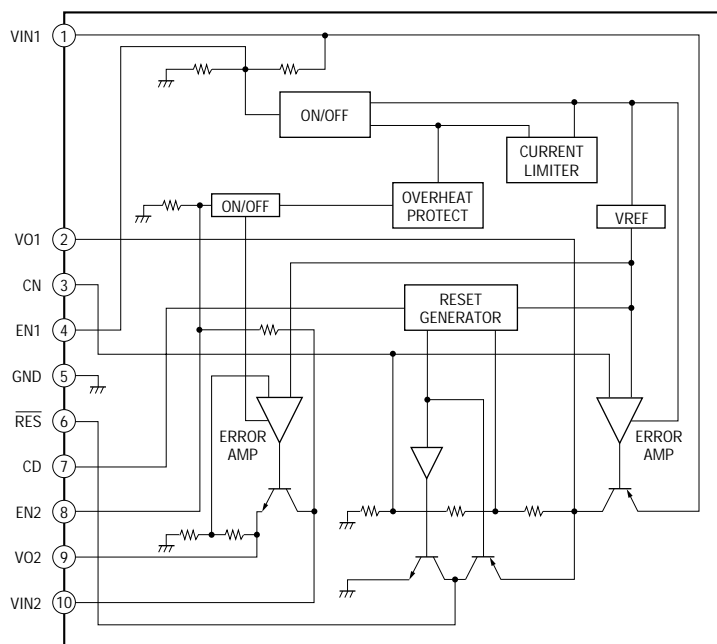


– MAIN Board –

IC503 CXA1291P

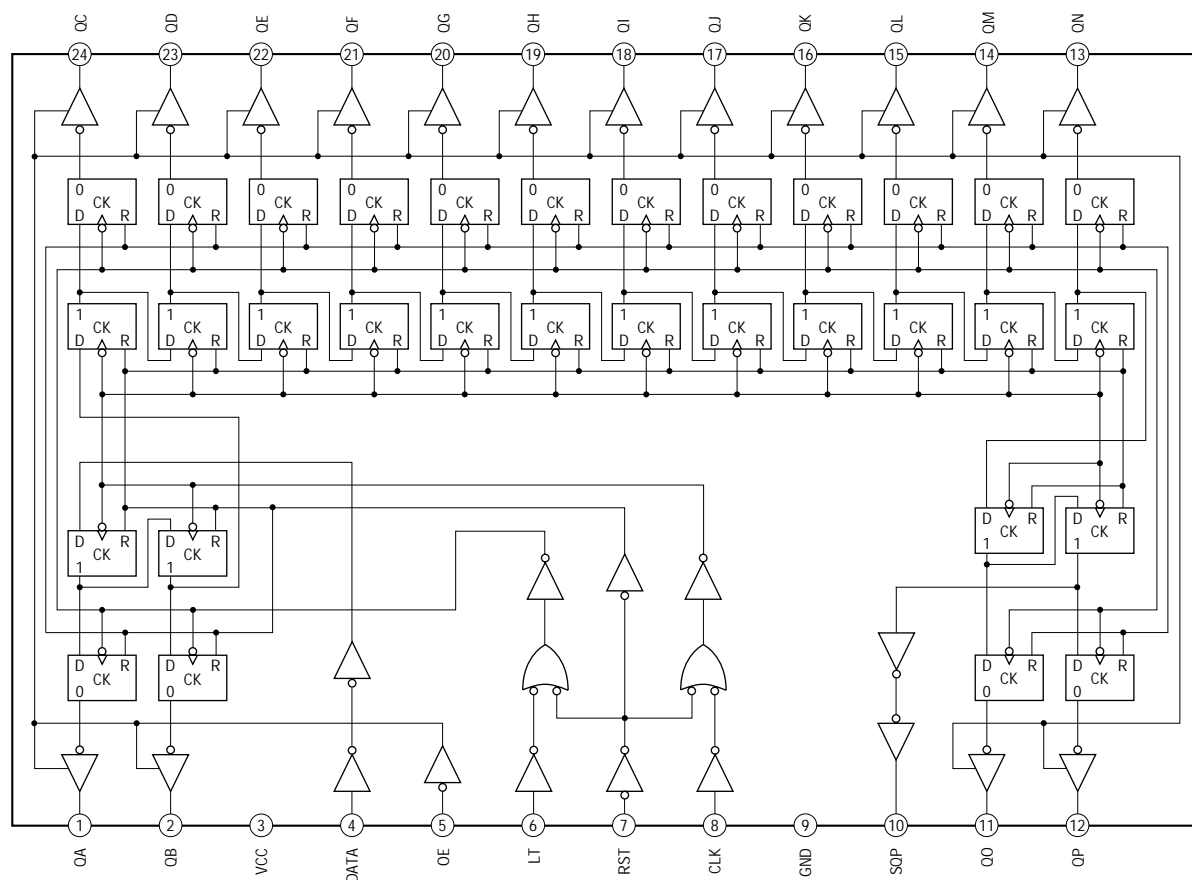


IC506 LA5616



– DISP Board –

IC702 M66310FP



7-12. IC PIN FUNCTION DESCRIPTION

• MAINN BOARD IC501 CXP84340-075Q (SYSTEM CONTROLLER)

| Pin No. | Pin Name | I/O | Function |
|---------|---------------------------|-----|---|
| 1 to 5 | A3 to A7 | O | Address signal output to the static RAM (IC502) |
| 6 | A12 | O | |
| 7 | A14 | O | |
| 8 to 11 | A11 to A8 | O | |
| 12 | A13 | O | |
| 13 | $\overline{\text{WE}}$ | O | Data write enable signal output to the static RAM (IC502) “L” active |
| 14 | CE | O | Chip enable signal output to the static RAM (IC502) “H” active |
| 15 | KBCOUT | O | Serial data transfer clock signal output terminal Not used (open) |
| 16 | KBDOUT | O | Serial data output terminal Not used (open) |
| 17 | KBDIN | I | Serial data input terminal Not used (open) |
| 18 | FLDATA | O | Serial data output to the FL driver (IC701) and LED driver (IC702) |
| 19 | FLCLK | O | Serial data transfer clock signal output to the FL driver (IC701) and LED driver (IC702) |
| 20 | LEDLT | O | Serial data latch pulse output to the LED driver (IC702) “L” active |
| 21 | TBLL | O | Table motor drive signal (counterclockwise) output to the CXA1291P (IC503) “H” active |
| 22 | TBLR | O | Table motor drive signal (clockwise) output to the CXA1291P (IC503) “H” active |
| 23 | DRIN | O | Door motor drive signal (door close) output to the CXA1291P (IC503) “H” active |
| 24 | DROUT | O | Door motor drive signal (door open) output to the CXA1291P (IC503) “H” active |
| 25 | ADJ | I | Setting terminal for the test mode “L”: ADJ mode, Normally: fixed at “H” |
| 26 | LDIN | O | Loading motor drive signal (load-in direction) output to the CXA1291P (IC503) “H” active |
| 27 | LDOUT | O | Loading motor drive signal (load-out direction) output to the CXA1291P (IC503) “H” active |
| 28 | BUSOUT | O | Sircs remote control signal output for the S-LINK CONTROL A1 “H” active |
| 29 | SMUTE | O | Muting on/off control signal output terminal “H” active Not used (pull up) |
| 30 | $\overline{\text{RESET}}$ | I | System reset signal input from the reset signal generator (IC505) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H” |
| 31 | EXTAL | I | Main system clock input terminal (10 MHz) |
| 32 | XTAL | O | Main system clock output terminal (10 MHz) |
| 33 | VSS | — | Ground terminal |
| 34 | TX | O | Sub system clock output terminal Not used (open) |
| 35 | TEX | I | Sub system clock input terminal Not used (fixed at “L”) |
| 36 | AVSS | — | Ground terminal (for A/D converter) |
| 37 | AVREF | I | Reference voltage (+5V) input terminal (for A/D converter) |
| 38 | D.SENS | I | Inputs the disc sensor (Q801) detection signal (A/D input) |
| 39 | DOORSW | I | Door open/close detect switch (S810) input (A/D input) “L”: open |
| 40 | CD1/2/3 | I | COMMAND MODE switch (S901) input terminal (A/D input) “L”: CD1, “H”: CD3 (CD2: center voltage input) |
| 41 | SW | I | Destination setting terminal (A/D input) Fixed at “L” in this set |
| 42 | KEY3 | I | Key input terminal (A/D input) ■, ■■, ▷, CLEAR, CHECK, ▷▷ AMS, ◀◀ AMS, PUSH ENTER keys input and rotary encoder jog dial pulse input (S611 to 617 and RE601) |
| 43 | KEY2 | I | Key input terminal (A/D input) ≡ OPEN/CLOSE, INPUT, MEMO SEARCH keys input and rotary encoder jog dial pulse input (S621 to 623 and RE601) |
| 44 | KEY1 | I | Key input terminal (A/D input) I/⌂, TIME/TEXT, GROUP FILE, GROUP 8/7/6/5 keys input (S731 to 737) |
| 45 | KEY0 | I | Key input terminal (A/D input) REPEAT, PROGRAM, SHUFFLE, CONTINUE, GROUP 4/3/2/1 keys input (S721 to 728) |
| 46 | BUSIN | I | Sircs remote control signal input for the S-LINK CONTROL A1 “L” active |
| 47 | AMUTE | O | Muting on/off control signal output to the CXD2587Q (IC101) “H”: muting on |

| Pin No. | Pin Name | I/O | Function |
|----------|----------|-----|---|
| 48 | CLK | O | Command serial data transfer clock signal output to the CXD2587Q (IC101) |
| 49 | XLT | O | Command latch pulse output to the CXD2587Q (IC101) “L” active |
| 50 | DATA | O | Command serial data output to the CXD2587Q (IC101) |
| 51 | SQCLK | O | SENS serial data reading clock and subcode Q data reading clock signal output to the CXD2587Q (IC101) |
| 52 | SUBQ | I | Subcode Q data input from the CXD2587Q (IC101) |
| 53 | NC | O | Not used (open) |
| 54 | SENS | I | Internal status monitor input from the CXD2587Q (IC101) “H” active |
| 55 | OUTSW | I | Inputs the loading in/out detect switch (S801) detection signal “L” active |
| 56 | RMIN | I | Remote control signal input from the remote control receiver (IC601) “L” active |
| 57 | AFADJ | I | Setting terminal for the test mode “L”: AFADJ mode, Normally: fixed at “H” |
| 58 | FLLT | O | Serial data latch pulse output to the FL driver (IC701) “L” active |
| 59 | NC | O | Not used (open) |
| 60 | KBCIN | O | Serial data transfer clock signal output terminal Not used (open) |
| 61 | SCOR | I | Subcode sync (S0+S1) detection signal input from the CXD2587Q (IC101) “H” active |
| 62 | T.SENS1 | I | Disc table flag detect sensor (IC802) input terminal |
| 63 | T.SENS2 | I | Disc table flag detect sensor (IC803) input terminal |
| 64 | T.SENS3 | I | Disc table home position detect sensor (IC801) input terminal |
| 65 | ICSW | O | Enable signal output to the LA5616 (IC506) Used for the BD section reset “H” active |
| 66 | RFSW | O | RF AGC hold control signal output to the CXA2568M (IC103) “H” active |
| 67 | INSW | I | Inputs the loading in/out detect switch (S801) detection signal “L” active |
| 68 to 71 | D3 to D6 | I/O | Two-way data bus with the static RAM (IC502) |
| 72 | VDD | — | Power supply terminal (+5V) |
| 73 | NC (VDD) | — | Not used (connected to power supply (+5V) line) |
| 74 | D7 | I/O | Two-way data bus with the static RAM (IC502) |
| 75 to 77 | D2 to D0 | I/O | Two-way data bus with the static RAM (IC502) |
| 78 to 80 | A0 to A2 | O | Address signal output to the static RAM (IC502) |

SECTION 8

EXPLODED VIEWS



NOTE:


- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)

↑
Parts Color

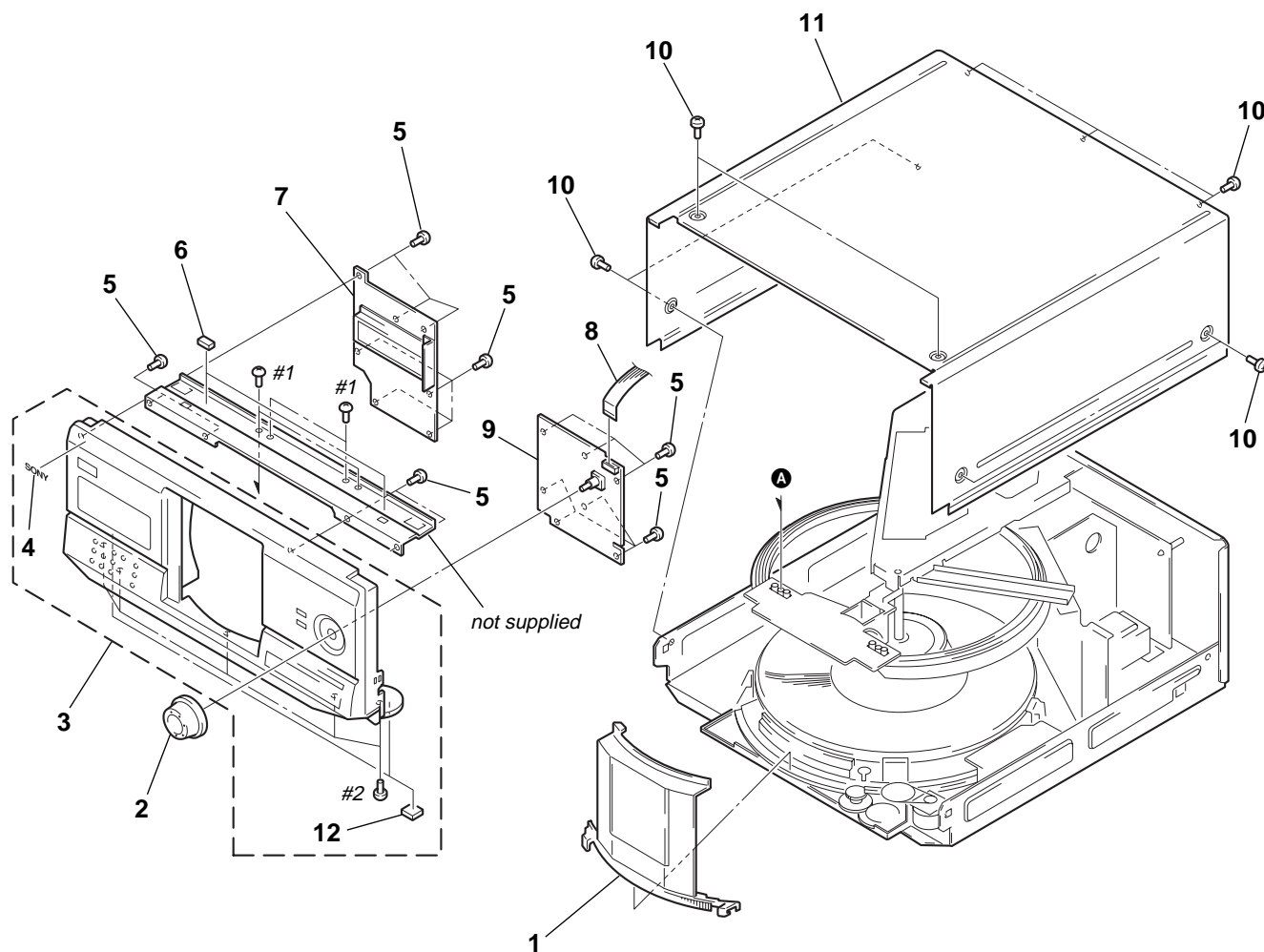
↑
Cabinet's Color
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.
- Abbreviation
AED : North European
AUS : Australian
CND : Canadian
SP : Singapore

The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

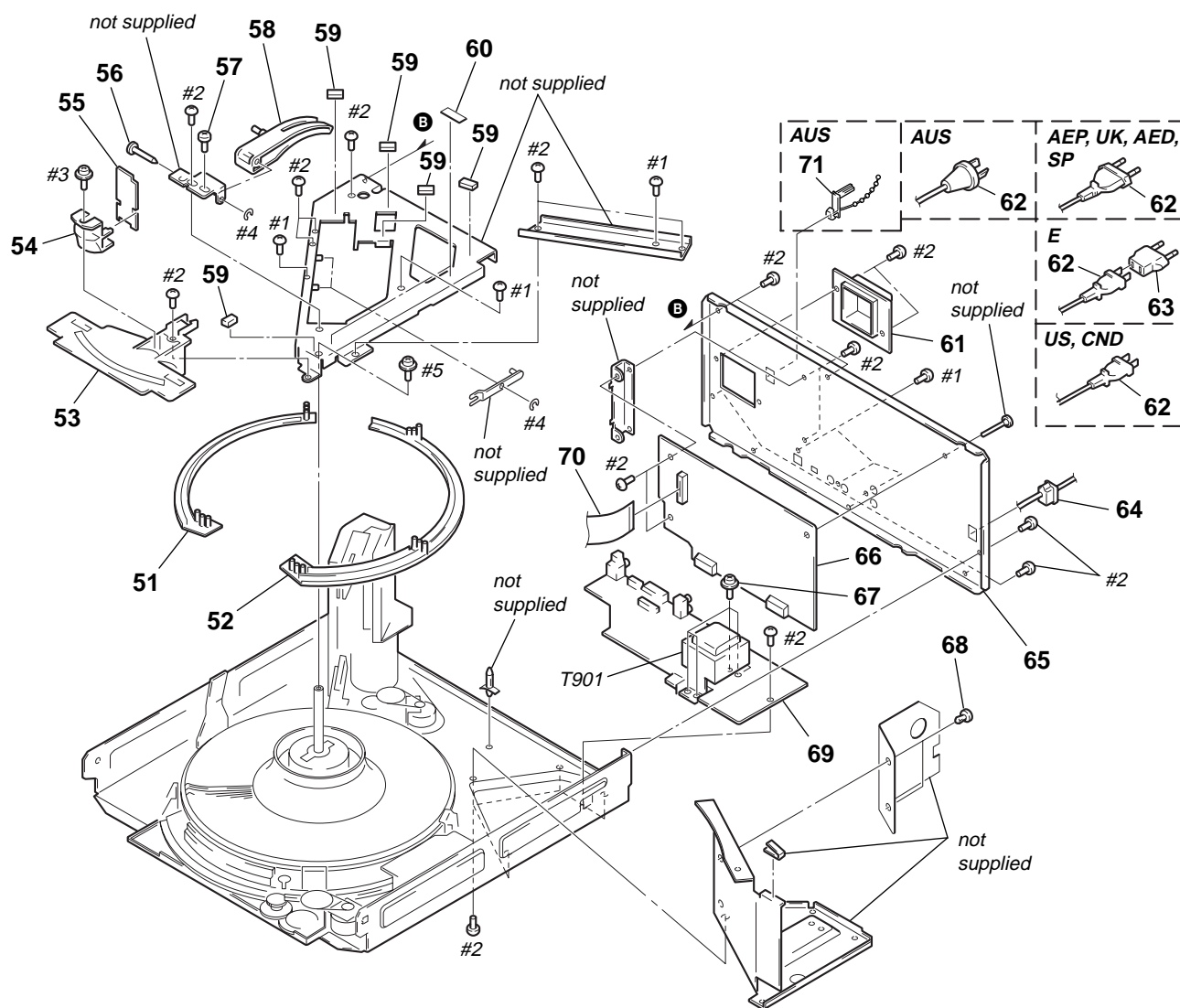
Les composants identifiés par une
marque  sont critiques pour la
sécurité.
Ne les remplacer que par une pièce
portant le numéro spécifié.



(1) CASE, FRONT PANEL SECTION




| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | <u>Remark</u> | <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | <u>Remark</u> |
|-----------------|-----------------|------------------------------------|---------------|-----------------|-----------------|---------------------------------------|---------------|
| 1 | X-4949-616-1 | DOOR (CD) ASSY | | * 7 | A-4724-027-A | DISP BOARD, COMPLETE (US, CND) | |
| 2 | 4-998-523-01 | KNOB (JOG) | | * 7 | A-4724-033-A | DISP BOARD, COMPLETE (EXCEPT US, CND) | |
| 3 | X-4949-618-1 | PANEL ASSY, FRONT (US, CND) | | 8 | 1-783-364-11 | WIRE (FLAT TYPE) (15 CORE) | |
| 3 | X-4949-619-1 | PANEL ASSY, FRONT (EXCEPT US, CND) | | * 9 | 1-669-161-11 | JOG BOARD | |
| 4 | 4-996-698-01 | EMBLEM, SONY | | 10 | 3-363-099-01 | SCREW (CASE 3 TP2) | |
| 5 | 4-951-620-01 | SCREW (2.6X8), +BVTP | | * 11 | 4-982-946-11 | CASE | |
| 6 | 4-985-553-21 | CUSHION | | 12 | 4-977-358-11 | CUSHION (FOOT) | |

(2) GUIDE ASSY, REAR PANEL SECTION

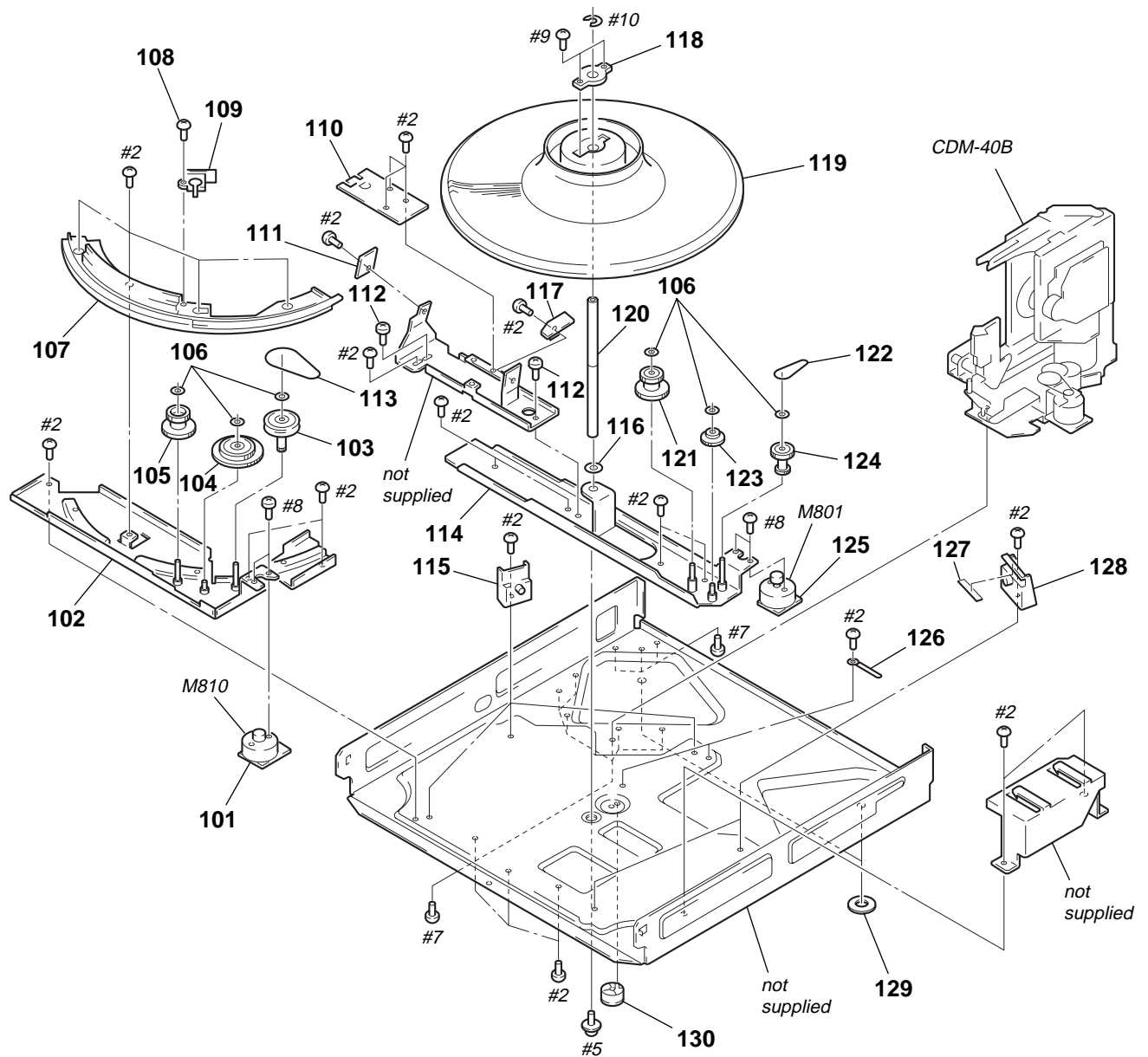


The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

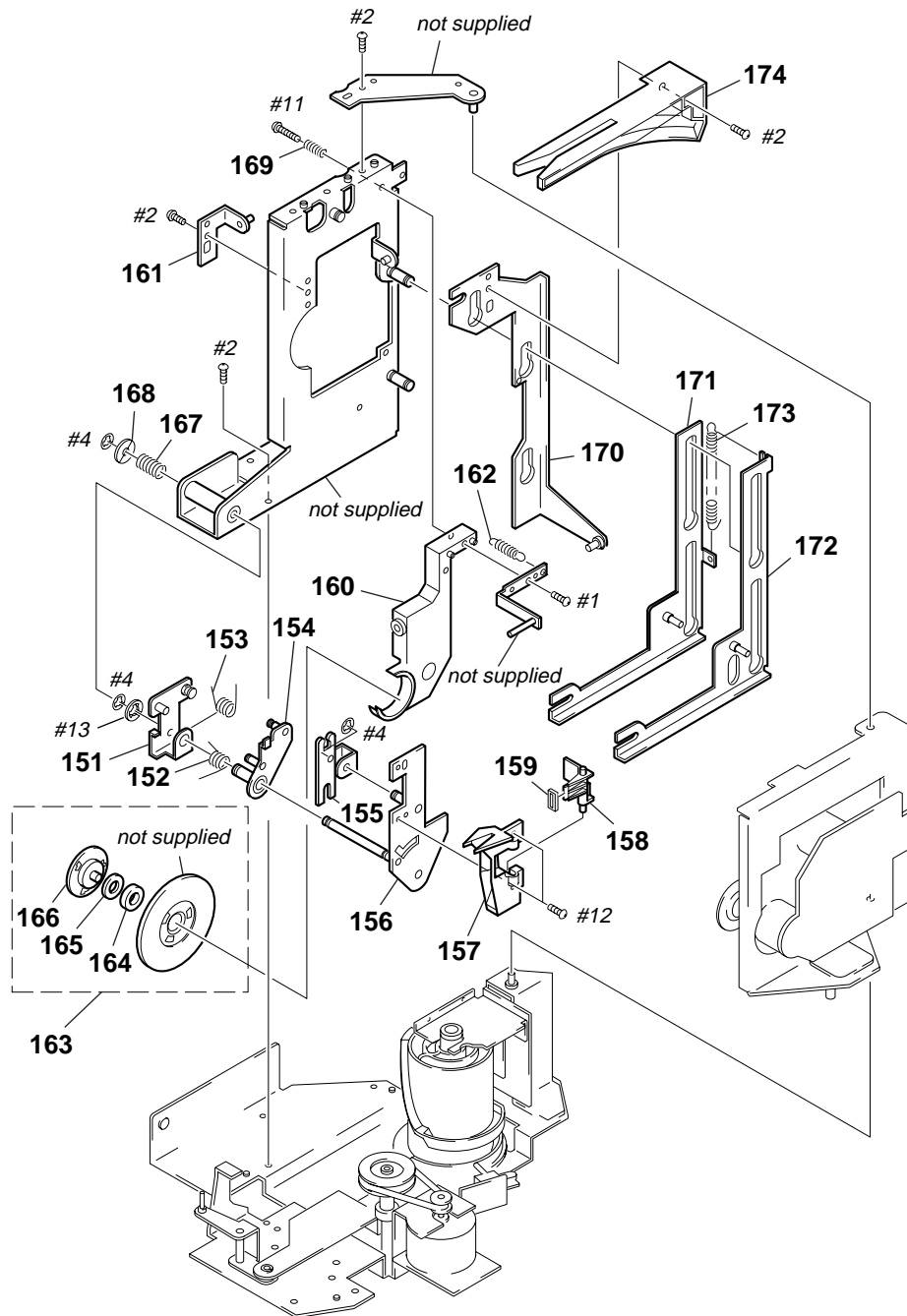
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|---------------------------------|--------|----------|--------------|---|--------|
| * 51 | 4-982-802-01 | RING (A) | | * 65 | 4-998-525-01 | PANEL, BACK (US) | |
| * 52 | 4-982-803-01 | RING (B) | | * 65 | 4-998-525-11 | PANEL, BACK (CND) | |
| 53 | 4-998-506-01 | GUIDE (DOOR. T) | | * 65 | 4-998-525-21 | PANEL, BACK (AEP, UK, AED) | |
| 54 | 4-999-182-01 | ILLUMINATOR | | * 65 | 4-998-525-41 | PANEL, BACK (SP) | |
| * 55 | 1-669-166-11 | ILLUMINATION BOARD | | * 65 | 4-998-525-51 | PANEL, BACK (E) | |
| 56 | 4-982-870-01 | SHAFT (GUIDE FULCRUM) | | * 65 | 4-998-525-61 | PANEL, BACK (AUS) | |
| 57 | 3-356-601-11 | SCREW, STEP | | * 66 | A-4724-022-A | MAIN BOARD, COMPLETE (US, CND) | |
| 58 | 4-982-862-01 | GUIDE (DISC T) | | * 66 | A-4724-031-A | MAIN BOARD, COMPLETE (EXCEPT US, CND) | |
| 59 | 4-985-553-11 | CUSHION | | 67 | 4-886-821-11 | SCREW, S TIGHT, +PTTWH 3X6 | |
| * 60 | 3-378-434-01 | CUSHION, SARANET | | 68 | 4-053-543-01 | RIVET, NYLON | |
| * 61 | 4-982-807-01 | COVER (FFC) | | * 69 | 1-669-164-11 | JACK BOARD | |
| △62 | 1-575-042-21 | CORD, POWER (US, CND) | | 70 | 1-773-183-11 | WIRE (FLAT TYPE) (23 CORE) | |
| △62 | 1-575-651-21 | CORD, POWER (AEP, UK, AED, SP) | | 71 | 4-956-370-12 | BAND, PLUG FIXED (AUS) | |
| △62 | 1-696-027-11 | CORD, POWER (E) | | △T901 | 1-431-759-11 | TRANSFORMER, POWER (US, CND) | |
| △62 | 1-696-845-11 | CORD, POWER (AUS) | | △T901 | 1-431-760-11 | TRANSFORMER, POWER (AEP, UK, AED, SP, AUS) | |
| △63 | 1-569-007-11 | ADAPTOR, CONVERSION 2P (E) | | | | | |
| * 64 | 3-703-244-00 | BUSHING (2104), CORD (EXCEPT E) | | △T901 | 1-431-761-11 | TRANSFORMER, POWER (E) | |
| 64 | 3-703-571-11 | BUSHING (S) (4516), CORD (E) | | | | | |

(3) CHASSIS SECTION



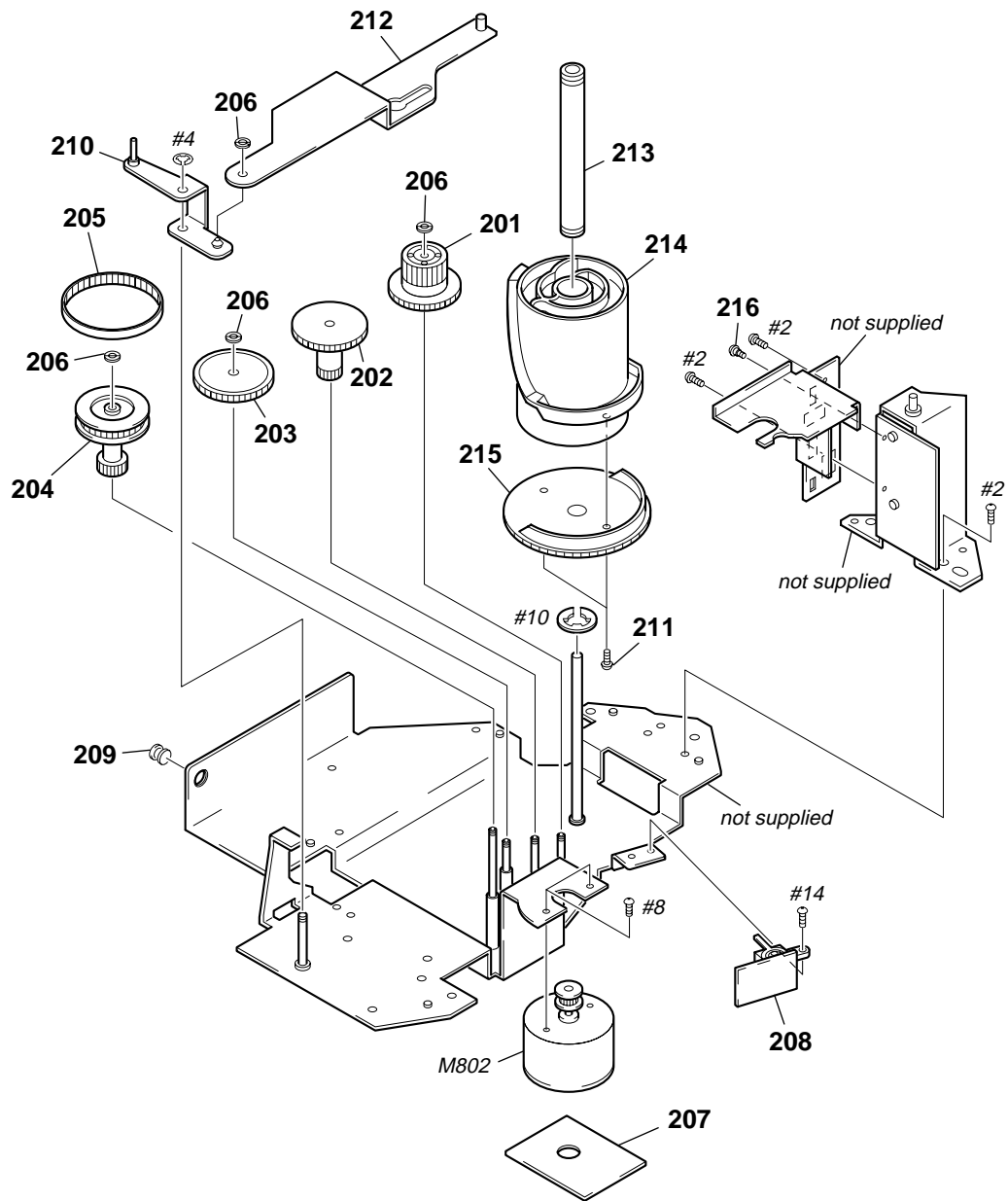
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|--------------------------|--------|----------|--------------|-----------------------------|--------|
| * 101 | 1-669-167-11 | DOOR MOTOR BOARD | | * 117 | 1-661-469-11 | D. SENS (RAY CATCHER) BOARD | |
| * 102 | X-4949-615-1 | BRACKET (GEAR) ASSY | | 118 | 4-976-471-01 | BEARING (TABLE) | |
| 103 | 4-998-510-01 | GEAR (PULLEY) | | 119 | X-4947-231-1 | TABLE (200) ASSY | |
| 104 | 4-998-509-01 | GEAR (CENTER) | | 120 | 4-982-892-01 | SHAFT (CENTER) | |
| 105 | 4-998-508-01 | GEAR (DOOR) | | 121 | 4-982-891-01 | GEAR (TABLE) | |
| 106 | 3-325-697-21 | WASHER | | 122 | 4-962-822-01 | BELT (TIMING) | |
| 107 | 4-998-507-01 | GUIDE (DOOR.B) | | 123 | 4-982-893-01 | GEAR (CENTER 2) | |
| 108 | 4-951-620-01 | SCREW (2.6X8), +BVTP | | 124 | X-4947-607-1 | GEAR (PULLEY) ASSY | |
| * 109 | 1-669-168-11 | DOOR SW BOARD | | * 125 | 1-661-466-11 | T. MOTOR BOARD | |
| * 110 | 1-661-470-11 | T. SENS BOARD | | 126 | 3-703-397-01 | STOPPER, WIRING | |
| * 111 | 1-661-468-11 | D. SENS (LUMINOUS) BOARD | | 127 | 4-985-574-01 | SPACER (ROLLER) | |
| 112 | 3-356-601-11 | SCREW, STEP | | 128 | X-4947-229-1 | HOLDER (ROLLER) ASSY | |
| 113 | 4-210-030-01 | BELT (42X1) | | 129 | 4-983-279-01 | CUSHION (RF) | |
| 114 | X-4947-230-2 | BRACKET (TABLE) ASSY | | 130 | 4-931-169-01 | FOOT | |
| 115 | X-4947-606-1 | HOLDER (ROLLER 2) ASSY | | M801 | A-4604-847-A | MOTOR ASSY (TABLE) | |
| 116 | 3-701-446-21 | WASHER, 8 | | M810 | X-4950-062-1 | DOOR MOTOR ASSY | |

(4) MECHANISM DECK SECTION-1
(CDM-40B)



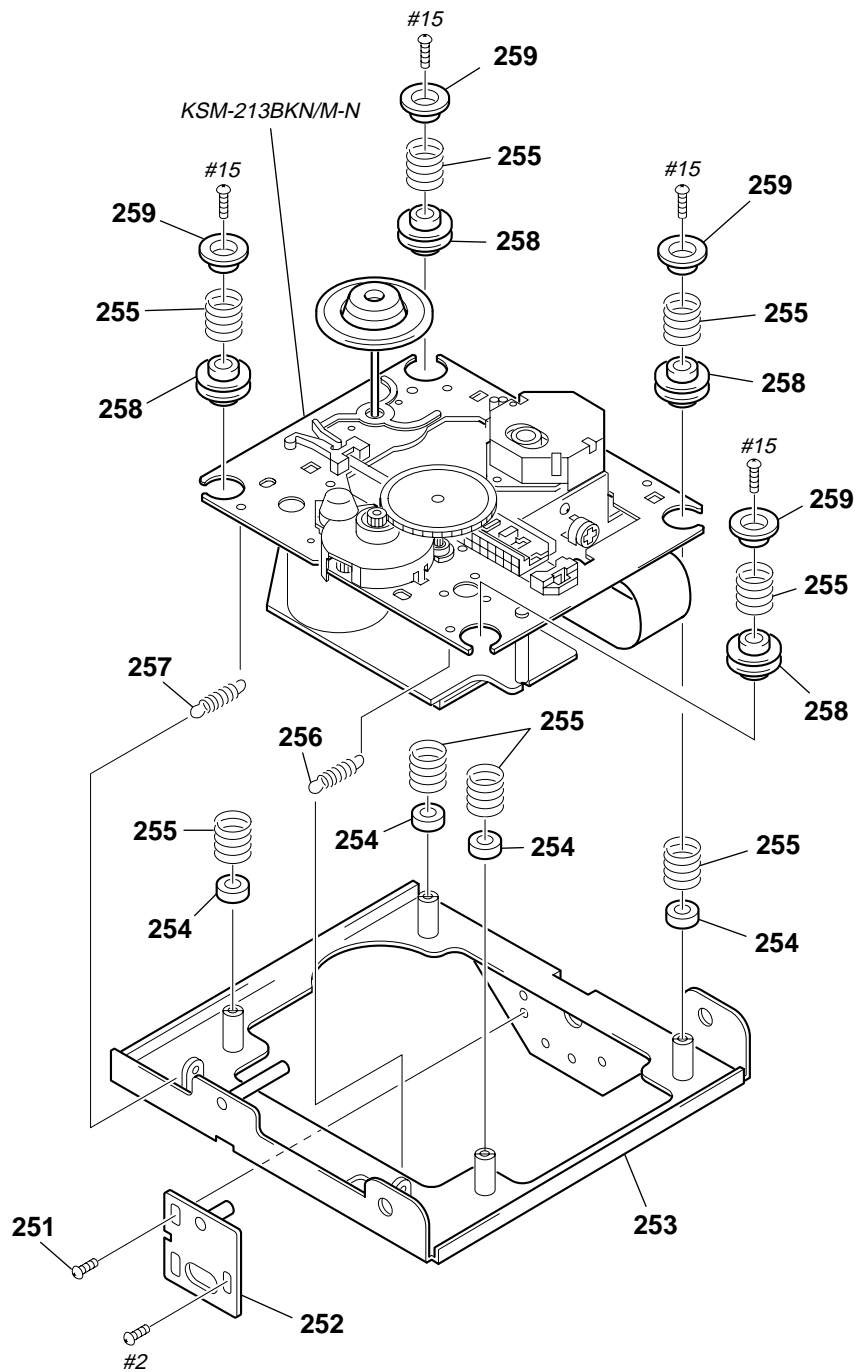
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|----------------------------|--------|----------|--------------|------------------------------|--------|
| 151 | X-4947-241-1 | LEVER (C) ASSY | | 163 | A-4672-092-A | MAGNET ASSY | |
| 152 | 4-982-882-01 | SPRING (LIMITTER), TORSION | | 164 | 3-366-559-02 | MAGNET (CHUCK) | |
| 153 | 4-982-881-01 | SPRING (HOLDER), TORSION | | 165 | 4-960-633-01 | YOKE (MAGNET) | |
| 154 | X-4947-239-1 | LIMITTER (A) ASSY | | 166 | 4-960-632-11 | PULLEY (B) | |
| 155 | 4-982-853-01 | LEVER (B) | | 167 | 4-983-319-01 | SPRING (THRUST), COMPRESSION | |
| 156 | X-4947-240-1 | LEVER (A) ASSY | | * 168 | 4-976-456-01 | WASHER (STOPPER) | |
| 157 | 4-988-143-01 | HOLDER (DISC A2) | | 169 | 3-938-588-01 | SPRING, COMPRESSION | |
| 158 | 4-982-855-01 | HOLDER (DISC B) | | 170 | X-4947-242-1 | SLIDER (C) ASSY | |
| 159 | 4-982-856-01 | PAD | | 171 | X-4947-238-1 | SLIDER (B) ASSY | |
| 160 | 4-976-458-01 | HOLDER (MAGNET) | | 172 | X-4947-237-1 | SLIDER (A) ASSY | |
| 161 | X-4946-326-1 | HOLDER (CLAMP) ASSY | | 173 | 4-982-880-01 | SPRING (SLIDER A), TENSION | |
| 162 | 4-983-777-01 | SPRING (MG), TENSION | | * 174 | 4-982-863-01 | GUIDE (DISC P) | |

(5) MECHANISM DECK SECTION-2
(CDM-40B)



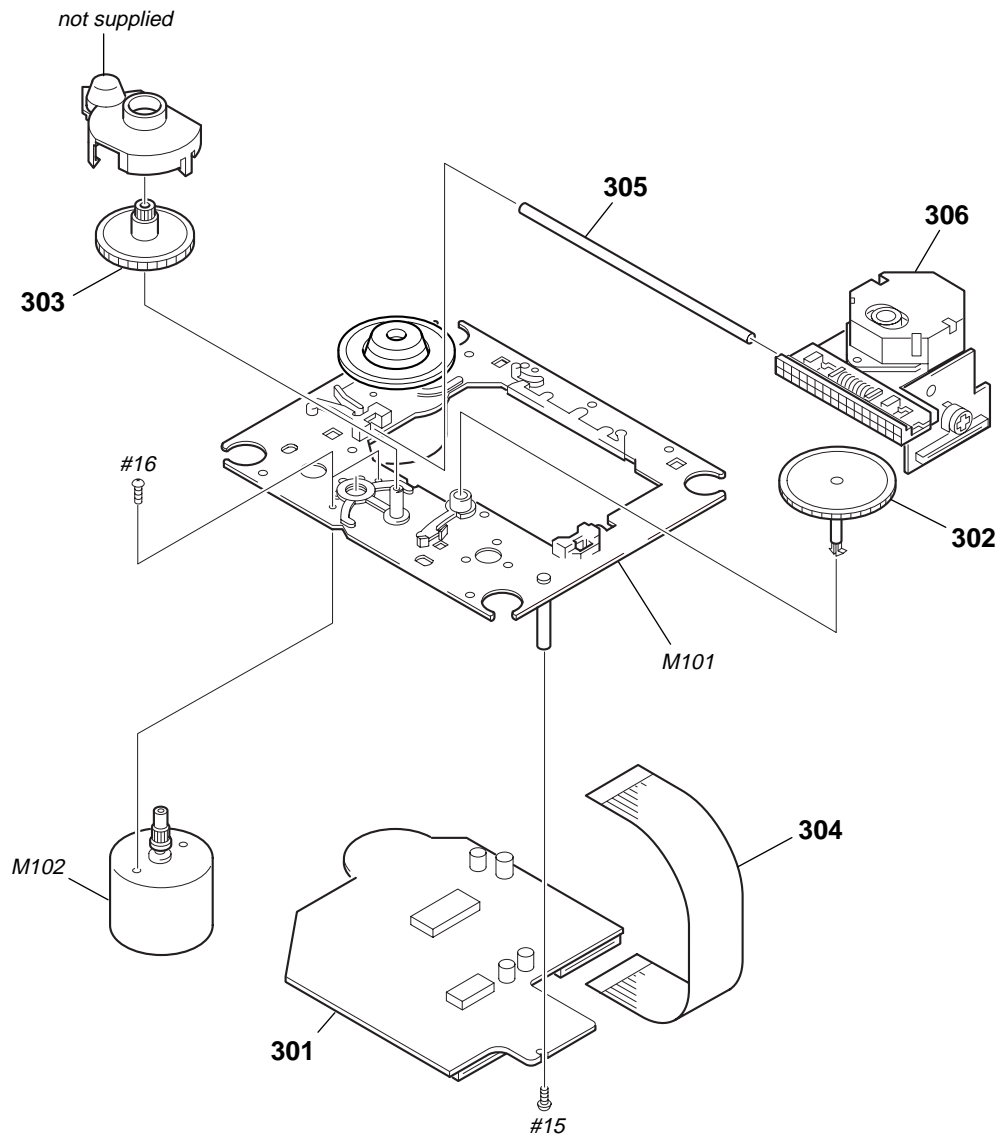
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|--------------------|--------|----------|--------------|----------------------|--------|
| 201 | 4-976-465-01 | GEAR (LOADING 1) | | 210 | X-4947-227-1 | LEVER (STOPPER) ASSY | |
| 202 | 4-976-466-01 | GEAR (LOADING 2) | | 211 | 4-951-291-01 | SCREW | |
| 203 | 4-982-893-01 | GEAR (CENTER 2) | | 212 | X-4947-234-1 | SLIDER (LOCK) ASSY | |
| 204 | X-4947-607-1 | GEAR (PULLEY) ASSY | | 213 | 4-982-857-01 | BEARING (CAM) | |
| 205 | 4-982-867-01 | BELT (TIMING) | | 214 | 4-982-860-01 | CAM (A) | |
| 206 | 3-325-697-21 | WASHER | | 215 | 4-982-861-01 | CAM (B) | |
| * 207 | 1-661-465-11 | L. MOTOR BOARD | | 216 | 3-356-601-11 | SCREW, STEP | |
| * 208 | 1-661-467-11 | L. SW BOARD | | M802 | A-4604-847-A | MOTOR ASSY (LOADING) | |
| 209 | 3-489-073-00 | SCREW, THRUST | | | | | |

(6) MECHANISM DECK SECTION-3
(CDM-40B)



| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|-----------------------------|--------|----------|--------------|-----------------------|--------|
| 251 | 3-356-601-11 | SCREW, STEP | | 256 | 4-982-872-01 | SPRING (F-2), TENSION | |
| 252 | X-4947-244-1 | SLIDER (BU ADJUSTMENT) ASSY | | 257 | 4-982-871-01 | SPRING (F-1), TENSION | |
| 253 | X-4947-243-1 | HOLDER (BU) ASSY | | 258 | 4-982-858-01 | DAMPER | |
| 254 | 4-982-859-01 | HOLDER (DAMPER) | | 259 | 4-960-617-01 | CAP (F) | |
| 255 | 4-982-878-01 | SPRING (F), COMPRESSION | | | | | |

(7) OPTICAL PICK-UP SECTION
(KSM-213BKN/M-N)



| | |
|--|---|
| The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified. | Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. |
|--|---|

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|----------------------------|--------|--------------|--------------|--------------------------------------|--------|
| * 301 | A-4724-029-A | BD BOARD, COMPLETE | | 305 | 2-626-908-01 | SHAFT, SLED | |
| 302 | 2-626-907-01 | GEAR (A) | | Δ 306 | 8-848-379-31 | OPTICAL PICK-UP KSM-213BKN/M-N | |
| 303 | 2-627-003-02 | GEAR (B) (RP) | | M101 | X-2626-234-1 | T. T CHASSIS ASSY (MG) (K) (SPINDLE) | |
| 304 | 1-769-069-11 | WIRE (FLAT TYPE) (16 CORE) | | M102 | X-2625-769-1 | MOTOR GEAR ASSY (MB) (PP) (SLED) | |

SECTION 9 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Items marked “*” are not stocked since they are seldom required for routine service.
Some delay should be anticipated when ordering these items.

• SEMICONDUCTORS

In each case, u: μ , for example:uA. . . : μ A. . . uPA. . . : μ PA. . .
uPB. . . : μ PB. . . uPC. . . : μ PC. . .

• CAPACITORS

uF: μ F

• COILS

uH: μ H

• Abbreviation

AED : North European

AUS : Australian

CND : Canadian

SP : Singapore

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|-----------------------------|----------|----------|--------------|-----------------------------------|----------|
| * | A-4724-029-A | BD BOARD, COMPLETE ***** | | C163 | 1-126-205-11 | ELECT CHIP 47uF 20% | 6.3V |
| | | | | C164 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V |
| | | < CAPACITOR > | | C165 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V |
| C101 | 1-163-005-11 | CERAMIC CHIP 470PF | 10% 50V | C166 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V |
| C102 | 1-163-038-00 | CERAMIC CHIP 0.1uF | | C167 | 1-163-235-11 | CERAMIC CHIP 22PF | 5% 50V |
| C103 | 1-163-005-11 | CERAMIC CHIP 470PF | 10% 50V | C168 | 1-163-237-11 | CERAMIC CHIP 27PF | 5% 50V |
| C104 | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V | C171 | 1-163-137-00 | CERAMIC CHIP 680PF | 5% 50V |
| C106 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V | C172 | 1-163-251-11 | CERAMIC CHIP 100PF | 5% 50V |
| C107 | 1-164-346-11 | CERAMIC CHIP 1uF | 16V | C181 | 1-163-137-00 | CERAMIC CHIP 680PF | 5% 50V |
| C108 | 1-163-035-00 | CERAMIC CHIP 0.047uF | 50V | C182 | 1-163-251-11 | CERAMIC CHIP 100PF | 5% 50V |
| C109 | 1-163-145-00 | CERAMIC CHIP 0.0015uF | 5% 50V | | | < CONNECTOR > | |
| C110 | 1-163-017-00 | CERAMIC CHIP 0.0047uF | 5% 50V | CN101 | 1-770-072-11 | CONNECTOR, (LIF (NON-ZIF)) FFC23P | |
| C111 | 1-163-251-11 | CERAMIC CHIP 100PF | 5% 50V | CN102 | 1-777-937-11 | CONNECTOR, FFC/FPC 16P | |
| C112 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | | | < IC > | |
| C113 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | IC101 | 8-752-386-85 | IC CXD2587Q | |
| C114 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | IC102 | 8-759-455-91 | IC BA6392FP-E2 | |
| C115 | 1-126-607-11 | ELECT CHIP 47uF | 20% 4V | IC103 | 8-752-085-51 | IC CXA2568M-T6 | |
| C116 | 1-126-607-11 | ELECT CHIP 47uF | 20% 4V | | | < COIL > | |
| C117 | 1-126-209-11 | ELECT CHIP 100uF | 20% 4V | L101 | 1-414-234-11 | INDUCTOR CHIP 0uH | |
| C118 | 1-163-275-11 | CERAMIC CHIP 0.001uF | 5% 50V | L102 | 1-414-234-11 | INDUCTOR CHIP 0uH | |
| C119 | 1-163-231-11 | CERAMIC CHIP 15PF | 5% 50V | | | < TRANSISTOR > | |
| C120 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | Q101 | 8-729-010-08 | TRANSISTOR MSB710-R | |
| C121 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | | | < RESISTOR > | |
| C122 | 1-135-155-21 | TANTALUM CHIP 4.7uF | 10% 16V | R101 | 1-216-077-00 | METAL CHIP 15K | 5% 1/10W |
| C123 | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V | R102 | 1-216-097-00 | RES, CHIP 100K | 5% 1/10W |
| C124 | 1-164-005-11 | CERAMIC CHIP 0.47uF | 25V | R103 | 1-216-077-00 | METAL CHIP 15K | 5% 1/10W |
| C125 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | R104 | 1-216-085-00 | METAL CHIP 33K | 5% 1/10W |
| C126 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | R105 | 1-216-097-00 | RES, CHIP 100K | 5% 1/10W |
| C127 | 1-109-982-11 | CERAMIC CHIP 1uF | 10% 10V | R106 | 1-216-061-00 | METAL CHIP 3.3K | 5% 1/10W |
| C130 | 1-164-004-11 | CERAMIC CHIP 0.1uF | 10% 25V | R107 | 1-216-061-00 | METAL CHIP 3.3K | 5% 1/10W |
| C131 | 1-135-216-11 | TANTALUM CHIP 10uF | 20% 10V | R108 | 1-216-073-00 | METAL CHIP 10K | 5% 1/10W |
| C140 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | R109 | 1-216-121-00 | RES, CHIP 1M | 5% 1/10W |
| C141 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | R110 | 1-216-025-00 | RES, CHIP 100 | 5% 1/10W |
| C151 | 1-163-237-11 | CERAMIC CHIP 27PF | 5% 50V | R111 | 1-216-121-00 | RES, CHIP 1M | 5% 1/10W |
| C153 | 1-163-038-00 | CERAMIC CHIP 0.1uF | 25V | R113 | 1-216-121-00 | RES, CHIP 1M | 5% 1/10W |
| C154 | 1-164-336-11 | CERAMIC CHIP 0.33uF | 25V | R116 | 1-216-025-00 | RES, CHIP 100 | 5% 1/10W |
| C156 | 1-163-237-11 | CERAMIC CHIP 27PF | 5% 50V | | | | |
| C157 | 1-163-145-00 | CERAMIC CHIP 0.0015uF | 5% 50V | | | | |
| C159 | 1-163-019-00 | CERAMIC CHIP 0.0068uF | 10% 50V | | | | |
| C161 | 1-126-205-11 | ELECT CHIP 47uF | 20% 6.3V | | | | |
| C162 | 1-126-205-11 | ELECT CHIP 47uF | 20% 6.3V | | | | |

BD

D. SENS (LUMINOUS)

D. SENS (RAY CATCHER)

DISP

| Ref. No. | Part No. | Description | Remark | | | Ref. No. | Part No. | Description | Remark | | |
|----------|--------------|---------------------------------------|---------|-----|-------|----------|--------------|--------------------------------|--------|-----|------|
| R117 | 1-216-049-11 | RES, CHIP | 1K | 5% | 1/10W | C703 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| R119 | 1-216-043-00 | RES, CHIP | 560 | 5% | 1/10W | C704 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| | | | | | | C705 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| R123 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | | | | | | |
| R124 | 1-216-097-00 | RES, CHIP | 100K | 5% | 1/10W | C706 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| R131 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W | C707 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| R135 | 1-216-295-00 | SHORT | 0 | | | C708 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| R136 | 1-216-295-00 | SHORT | 0 | | | C709 | 1-162-288-31 | CERAMIC | 330PF | 10% | 50V |
| | | | | | | C710 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| R137 | 1-216-295-00 | SHORT | 0 | | | | | | | | |
| R138 | 1-216-295-00 | SHORT | 0 | | | C711 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| R143 | 1-216-103-00 | METAL CHIP | 180K | 5% | 1/10W | C712 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| R144 | 1-216-103-00 | METAL CHIP | 180K | 5% | 1/10W | | | | | | |
| R147 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | | | < LEAD PIN > | | | |
| | | | | | | | | | | | |
| R148 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W | * CLP701 | 1-690-880-31 | LEAD (WITH CONNECTOR) | | | |
| R149 | 1-216-003-11 | RES, CHIP | 12 | 5% | 1/10W | | | < LED > | | | |
| R158 | 1-216-111-00 | METAL CHIP | 390K | 5% | 1/10W | | | | | | |
| R159 | 1-216-101-00 | METAL CHIP | 150K | 5% | 1/10W | D701 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 1) | | | |
| R161 | 1-216-308-00 | METAL CHIP | 4.7 | 5% | 1/10W | D702 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 2) | | | |
| | | | | | | D703 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 3) | | | |
| R162 | 1-216-101-00 | METAL CHIP | 150K | 5% | 1/10W | D704 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 4) | | | |
| R171 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | D705 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 5) | | | |
| R172 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | | | | | | |
| R173 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | D706 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 6) | | | |
| R181 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | D707 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 7) | | | |
| | | | | | | D708 | 8-719-046-39 | LED SEL5821A-TH15 (GROUP 8) | | | |
| R182 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | D709 | 8-719-046-44 | LED SEL5221S (STANDBY) | | | |
| R183 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | | | < FLUORESCENT INDICATOR TUBE > | | | |
| | | < SWITCH > | | | | | | | | | |
| S101 | 1-572-085-11 | SWITCH, LEAF (LIMIT) | | | | FL701 | 1-517-756-11 | INDICATOR TUBE, FLUORESCENT | | | |
| | | < VIBRATOR > | | | | | | < IC > | | | |
| X101 | 1-767-408-41 | VIBRATOR, CRYSTAL (16.9344MHz) | | | | IC601 | 8-749-014-66 | IC NJL56H400 | | | |
| ***** | | | | | | IC701 | 8-759-498-92 | IC MSM9202-03GS-K | | | |
| * | 1-661-468-11 | D.SENS (LUMINOUS) BOARD | | | | IC702 | 8-759-183-47 | IC M66310FP | | | |
| | | ***** | | | | | | < TRANSISTOR > | | | |
| * | 4-976-473-01 | HOLDER (LED-S) | | | | | | | | | |
| | | < DIODE > | | | | Q701 | 8-729-900-80 | TRANSISTOR DTC114ES | | | |
| | | | | | | | | < RESISTOR > | | | |
| D801 | 8-719-055-84 | DIODE GL-528VS1 | | | | R701 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| ***** | | | | | | R702 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| * | | | | | | R703 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| | 1-661-469-11 | D.SENS (RAY CATCHER) BOARD | | | | R704 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| | | ***** | | | | R705 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| * | 4-985-300-01 | HOLDER (P-T) | | | | | | | | | |
| | | < PHOTO TRANSISTOR > | | | | R706 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| | | | | | | R707 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| Q801 | 8-729-926-31 | PHOTO TRANSISTOR PT483F1S | | | | R708 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| ***** | | | | | | R709 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| | | | | | | R711 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W |
| * | A-4724-027-A | DISP BOARD, COMPLETE (US, CND) | | | | | | | | | |
| * | A-4724-033-A | DISP BOARD, COMPLETE (EXCEPT US, CND) | | | | R712 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W |
| | | ***** | | | | R713 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W |
| | | | | | | R722 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W |
| * | 4-982-811-01 | HOLDER (FL) | | | | R723 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| | | < CAPACITOR > | | | | R724 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| | | | | | | | | | | | |
| C701 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V | R725 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| C702 | 1-162-215-31 | CERAMIC | 47PF | 5% | 50V | R726 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| | | | | | | R727 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| | | | | | | R728 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| | | | | | | R732 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W |

DISP

DOOR MOTOR

DOOR SW

ILLUMINATION

JACK

| Ref. No. | Part No. | Description | | | Remark |
|---------------|--------------|-------------------------------------|------|----|--------|
| R733 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W |
| R734 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R735 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W |
| R736 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| R737 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W |
| | | | | | |
| R751 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| < SWITCH > | | | | | |
| S721 | 1-572-184-11 | SWITCH, KEYBOARD (REPEAT) | | | |
| S722 | 1-572-184-11 | SWITCH, KEYBOARD (PROGRAM) | | | |
| S723 | 1-572-184-11 | SWITCH, KEYBOARD (SHUFFLE) | | | |
| S724 | 1-572-184-11 | SWITCH, KEYBOARD (CONTINUE) | | | |
| S725 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 4) | | | |
| | | | | | |
| S726 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 3) | | | |
| S727 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 2) | | | |
| S728 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 1) | | | |
| S731 | 1-572-184-11 | SWITCH, KEYBOARD (I/⏻) | | | |
| S732 | 1-572-184-11 | SWITCH, KEYBOARD (TIME/TEXT) | | | |
| | | | | | |
| S733 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP FILE) | | | |
| S734 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 8) | | | |
| S735 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 7) | | | |
| S736 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 6) | | | |
| S737 | 1-572-184-11 | SWITCH, KEYBOARD (GROUP 5) | | | |
| ***** | | | | | |
| * | 1-669-167-11 | DOOR MOTOR BOARD | | | |
| ***** | | | | | |
| < CONNECTOR > | | | | | |
| * CN812 | 1-568-951-11 | PIN, CONNECTOR 2P | | | |
| ***** | | | | | |
| * | 1-669-168-11 | DOOR SW BOARD | | | |
| ***** | | | | | |
| < RESISTOR > | | | | | |
| R807 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| < SWITCH > | | | | | |
| S810 | 1-571-300-21 | SWITCH, ROTARY (DOOR SW) | | | |
| ***** | | | | | |
| * | 1-669-166-11 | ILLUMINATION BOARD | | | |
| ***** | | | | | |
| < CONNECTOR > | | | | | |
| CN813 | 1-506-481-11 | PIN, CONNECTOR 2P | | | |
| < LED > | | | | | |
| D802 | 8-719-059-65 | LED HLMF-KL05 (INSIDE ILLUMINATION) | | | |
| D803 | 8-719-059-65 | LED HLMF-KL05 (INSIDE ILLUMINATION) | | | |
| D804 | 8-719-059-65 | LED HLMF-KL05 (INSIDE ILLUMINATION) | | | |
| < RESISTOR > | | | | | |
| R805 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W |
| R806 | 1-249-401-11 | CARBON | 47 | 5% | 1/4W |
| ***** | | | | | |

| Ref. No. | Part No. | Description | Remark | | |
|----------|--------------|--|---------|------|-----|
| * | 1-669-164-11 | JACK BOARD ***** | | | |
| * | 4-962-200-11 | PLATE (TR), GROUND < CAPACITOR > | | | |
| C351 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C451 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C901 | 1-161-494-00 | CERAMIC | 0.022uF | | 25V |
| C904 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C907 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C911 | 1-161-494-00 | CERAMIC | 0.022uF | | 25V |
| C912 | 1-126-052-11 | ELECT | 100uF | 20% | 10V |
| | | < CONNECTOR > | | | |
| CN902 | 1-569-497-11 | SOCKET, CONNECTOR 11P | | | |
| * CN903 | 1-569-496-11 | SOCKET, CONNECTOR 10P | | | |
| * CN904 | 1-568-951-11 | PIN, CONNECTOR 2P | | | |
| CN906 | 1-580-230-11 | PIN, CONNECTOR (PC BOARD) 2P | | | |
| | | < DIODE > | | | |
| D901 | 8-719-911-19 | DIODE 1SS119 | | | |
| | | < IC > | | | |
| IC901 | 8-749-921-12 | IC GP1F32T (DIGITAL OUT OPTICAL) | | | |
| | | < JACK > | | | |
| * J901 | 1-764-188-11 | JACK (SMALL TYPE) (DIA. 3.5) (S-LINK CONTROL A1) | | | |
| * J902 | 1-764-188-11 | JACK (SMALL TYPE) (DIA. 3.5) (S-LINK CONTROL A1) | | | |
| J904 | 1-770-719-11 | JACK, PIN 2P (LINE OUT) | | | |
| | | < LINE FILTER > | | | |
| △L901 | 1-421-915-11 | FILTER, LINE (EXCEPT E) | | | |
| | | < COIL > | | | |
| L902 | 1-410-503-11 | INDUCTOR 3.3uH | | | |
| | | < TRANSISTOR > | | | |
| Q901 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| | | < RESISTOR > | | | |
| R351 | 1-215-405-00 | METAL 220 | 1% | 1/4W | |
| R451 | 1-215-405-00 | METAL 220 | 1% | 1/4W | |
| R901 | 1-249-393-11 | CARBON 10 | 5% | 1/4W | |
| R902 | 1-249-425-11 | CARBON 4.7K | 5% | 1/4W | |
| R903 | 1-249-429-11 | CARBON 10K | 5% | 1/4W | |
| R921 | 1-249-429-11 | CARBON 10K | 5% | 1/4W | |
| | | < SWITCH > | | | |
| S901 | 1-762-910-11 | SWITCH, SLIDE (COMMAND MODE) | | | |
| △S902 | 1-572-675-11 | SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR) (E) | | | |

JACK

JOG

L.MOTOR

L.SW

MAIN

| Ref. No. | Part No. | Description | Remark |
|----------|--------------|--|--------|
| | | < TRANSFORMER > | |
| △ T901 | 1-431-759-11 | TRANSFORMER, POWER (US, CND) | |
| △ T901 | 1-431-760-11 | TRANSFORMER, POWER (AEP, AED, UK, SP, AUS) | |
| △ T901 | 1-431-761-11 | TRANSFORMER, POWER (E) | |
| ***** | | | |
| * | 1-669-161-11 | JOG BOARD ***** | |
| | | < CONNECTOR > | |
| * CN601 | 1-569-306-11 | SOCKET, CONNECTOR (L TYRE) 15P | |
| | | < LED > | |
| D601 | 8-719-046-40 | LED SEL5521C-TH8F (▷) | |
| D602 | 8-719-046-38 | LED SEL5821A-TH8F (■) | |
| | | < RESISTOR > | |
| R601 | 1-249-407-11 | CARBON 150 5% 1/4W | |
| R602 | 1-249-409-11 | CARBON 220 5% 1/4W | |
| R612 | 1-249-415-11 | CARBON 680 5% 1/4W | |
| R613 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R614 | 1-249-419-11 | CARBON 1.5K 5% 1/4W | |
| R615 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | |
| R616 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | |
| R617 | 1-249-427-11 | CARBON 6.8K 5% 1/4W | |
| R618 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R619 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R622 | 1-249-415-11 | CARBON 680 5% 1/4W | |
| R623 | 1-249-417-11 | CARBON 1K 5% 1/4W | |
| R624 | 1-249-419-11 | CARBON 1.5K 5% 1/4W | |
| R651 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R652 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| | | < ROTARY ENCODER > | |
| RE601 | 1-475-543-11 | ENCODER, ROTARY (DISC/CHARACTER PUSH ENTER) | |
| | | < SWITCH > | |
| S611 | 1-572-184-11 | SWITCH, KEYBOARD (■) | |
| S612 | 1-572-184-11 | SWITCH, KEYBOARD (■) | |
| S613 | 1-572-184-11 | SWITCH, KEYBOARD (▷) | |
| S614 | 1-572-184-11 | SWITCH, KEYBOARD (CLEAR) | |
| S615 | 1-572-184-11 | SWITCH, KEYBOARD (CHECK) | |
| S616 | 1-572-184-11 | SWITCH, KEYBOARD (▷⇐, AMS) | |
| S617 | 1-572-184-11 | SWITCH, KEYBOARD (⇐⇐, AMS) | |
| S621 | 1-572-184-11 | SWITCH, KEYBOARD (⇐, OPEN/CLOSE) | |
| S622 | 1-572-184-11 | SWITCH, KEYBOARD (INPUT) | |
| S623 | 1-572-184-11 | SWITCH, KEYBOARD (MEMO SEARCH) | |
| ***** | | | |
| * | 1-661-465-11 | L.MOTOR BOARD ***** | |
| ***** | | | |

| Ref. No. | Part No. | Description | Remark |
|----------|--------------|--|--------|
| * | 1-661-467-11 | L.SW BOARD ***** | |
| | | < SWITCH > | |
| S801 | 1-571-300-21 | SWITCH, ROTARY (LOADING DET) | |
| ***** | | | |
| * | A-4724-022-A | MAIN BOARD, COMPLETE (US, CND) | |
| * | A-4724-031-A | MAIN BOARD, COMPLETE (EXCEPT US, CND) ***** | |
| | 7-685-871-01 | SCREW +BVTT 3X6 (S) | |
| | | < CAPACITOR > | |
| C301 | 1-126-233-11 | ELECT 22uF 20% 50V | |
| C305 | 1-126-052-11 | ELECT 100uF 20% 10V | |
| C327 | 1-126-163-11 | ELECT 4.7uF 20% 50V | |
| C401 | 1-126-233-11 | ELECT 22uF 20% 50V | |
| C405 | 1-126-052-11 | ELECT 100uF 20% 10V | |
| C501 | 1-128-489-11 | ELECT 3300uF 20% 16V | |
| C502 | 1-124-360-00 | ELECT 1000uF 20% 16V (US, CND) | |
| C502 | 1-126-027-11 | ELECT 1000uF 20% 25V (EXCEPT US, CND) | |
| C503 | 1-124-122-11 | ELECT 100uF 20% 50V | |
| C504 | 1-126-021-11 | ELECT 33uF 20% 35V | |
| C505 | 1-126-052-11 | ELECT 100uF 20% 16V | |
| C506 | 1-126-101-11 | ELECT 100uF 20% 16V | |
| C507 | 1-126-044-11 | ELECT 1uF 20% 50V | |
| C508 | 1-126-101-11 | ELECT 100uF 20% 16V | |
| C509 | 1-124-997-11 | ELECT 470uF 20% 10V | |
| C510 | 1-126-163-11 | ELECT 4.7uF 20% 50V | |
| C511 | 1-126-163-11 | ELECT 4.7uF 20% 50V | |
| C512 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| C513 | 1-126-052-11 | ELECT 100uF 20% 16V | |
| C514 | 1-126-023-11 | ELECT 100uF 20% 25V | |
| C516 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C518 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C519 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C521 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C522 | 1-110-489-11 | CAPACITOR 1F 5.5V | |
| C531 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| C532 | 1-126-052-11 | ELECT 100uF 20% 10V | |
| C533 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| C551 | 1-136-165-00 | FILM 0.1uF 5% 50V | |
| C552 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C561 | 1-136-165-00 | FILM 0.1uF 5% 50V | |
| C562 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C571 | 1-136-165-00 | FILM 0.1uF 5% 50V | |
| C572 | 1-164-159-11 | CERAMIC 0.1uF 50V | |
| C610 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| C620 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| C720 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| C730 | 1-161-494-00 | CERAMIC 0.022uF 25V | |
| | | < CONNECTOR > | |
| CN501 | 1-569-321-11 | SOCKET, CONNECTOR 15P | |
| CN502 | 1-568-742-11 | SOCKET, CONNECTOR 23P | |

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------------|--------------|-------------------------|--------|----------|--------------|----------------|--------|
| * CN503 | 1-568-951-11 | PIN, CONNECTOR 2P | | R323 | 1-249-421-11 | CARBON 2.2K 5% | 1/4W |
| CN504 | 1-506-469-11 | PIN, CONNECTOR 4P | | R325 | 1-249-441-11 | CARBON 100K 5% | 1/4W |
| CN505 | 1-506-468-11 | PIN, CONNECTOR 3P | | R327 | 1-249-441-11 | CARBON 100K 5% | 1/4W |
| * CN506 | 1-568-955-11 | PIN, CONNECTOR 6P | | R401 | 1-215-453-00 | METAL 22K 1% | 1/4W |
| * CN507 | 1-568-951-11 | PIN, CONNECTOR 2P | | R402 | 1-215-425-00 | METAL 1.5K 1% | 1/4W |
| * CN508 | 1-569-505-11 | PIN, CONNECTOR 10P | | R403 | 1-215-425-00 | METAL 1.5K 1% | 1/4W |
| * CN509 | 1-569-506-11 | PIN, CONNECTOR 11P | | R404 | 1-215-445-00 | METAL 10K 1% | 1/4W |
| < DIODE > | | | | R405 | 1-215-443-00 | METAL 8.2K 1% | 1/4W |
| D327 | 8-719-911-19 | DIODE 1SS119 | | R413 | 1-215-469-00 | METAL 100K 1% | 1/4W |
| D501 | 8-719-024-99 | DIODE 11ES2-NTA2B | | R414 | 1-215-405-00 | METAL 220 1% | 1/4W |
| D502 | 8-719-024-99 | DIODE 11ES2-NTA2B | | R415 | 1-215-405-00 | METAL 220 1% | 1/4W |
| D503 | 8-719-024-99 | DIODE 11ES2-NTA2B | | R416 | 1-249-393-11 | CARBON 10 5% | 1/4W |
| D504 | 8-719-024-99 | DIODE 11ES2-NTA2B | | R422 | 1-249-421-11 | CARBON 2.2K 5% | 1/4W |
| D505 | 8-719-024-99 | DIODE 11ES2-NTA2B | | R423 | 1-249-421-11 | CARBON 2.2K 5% | 1/4W |
| D506 | 8-719-110-72 | DIODE RD30ESB2 | | R425 | 1-249-441-11 | CARBON 100K 5% | 1/4W |
| D507 | 8-719-109-93 | DIODE RD6.2ESB2 | | R501 | 1-249-435-11 | CARBON 33K 5% | 1/4W |
| D508 | 8-719-109-85 | DIODE RD5.1ES-B2 | | R502 | 1-249-425-11 | CARBON 4.7K 5% | 1/4W |
| D509 | 8-719-911-19 | DIODE 1SS119 | | R505 | 1-249-413-11 | CARBON 470 5% | 1/4W |
| D521 | 8-719-911-19 | DIODE 1SS119 | | R506 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| < IC > | | | | R507 | 1-249-425-11 | CARBON 4.7K 5% | 1/4W |
| IC401 | 8-759-145-58 | IC uPC4558C | | R508 | 1-249-413-11 | CARBON 470 5% | 1/4W |
| IC501 | 8-752-892-41 | IC CXP84340-075Q | | R511 | 1-249-425-11 | CARBON 4.7K 5% | 1/4W |
| IC502 | 8-759-463-99 | IC M5M5256DFP-70XL | | R512 | 1-249-425-11 | CARBON 4.7K 5% | 1/4W |
| IC503 | 8-759-821-32 | IC CXA1291P | | R521 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| IC504 | 8-759-094-53 | IC TA7805S | | R522 | 1-249-403-11 | CARBON 68 5% | 1/4W |
| IC505 | 8-759-256-72 | IC PST994D | | R523 | 1-249-403-11 | CARBON 68 5% | 1/4W |
| IC506 | 8-759-330-29 | IC LA5616 | | R524 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| < COIL > | | | | R531 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| L501 | 1-412-473-21 | INDUCTOR 0uH | | R532 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| L502 | 1-412-473-21 | INDUCTOR 0uH | | R533 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| < TRANSISTOR > | | | | R534 | 1-249-421-11 | CARBON 2.2K 5% | 1/4W |
| Q322 | 8-729-141-26 | TRANSISTOR 2SC3622A-LK | | R535 | 1-247-843-11 | CARBON 3.3K 5% | 1/4W |
| Q323 | 8-729-141-26 | TRANSISTOR 2SC3622A-LK | | R536 | 1-249-425-11 | CARBON 4.7K 5% | 1/4W |
| Q325 | 8-729-900-65 | TRANSISTOR DTA144ES | | R537 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q327 | 8-729-900-65 | TRANSISTOR DTA144ES | | R538 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q422 | 8-729-141-26 | TRANSISTOR 2SC3622A-LK | | R539 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q423 | 8-729-141-26 | TRANSISTOR 2SC3622A-LK | | R540 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q425 | 8-729-900-65 | TRANSISTOR DTA144ES | | R541 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q501 | 8-729-140-97 | TRANSISTOR 2SB734-34 | | R542 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q503 | 8-729-119-76 | TRANSISTOR 2SA1175-HFE | | R543 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| Q521 | 8-729-030-08 | TRANSISTOR DTC144VSA-TP | | R544 | 1-249-429-11 | CARBON 10K 5% | 1/4W |
| < RESISTOR > | | | | R551 | 1-247-887-00 | CARBON 220K 5% | 1/4W |
| R301 | 1-215-453-00 | METAL 22K 1% | 1/4W | R552 | 1-247-887-00 | CARBON 220K 5% | 1/4W |
| R302 | 1-215-425-00 | METAL 1.5K 1% | 1/4W | R553 | 1-247-860-11 | CARBON 16K 5% | 1/4W |
| R303 | 1-215-425-00 | METAL 1.5K 1% | 1/4W | R554 | 1-249-431-11 | CARBON 15K 5% | 1/4W |
| R304 | 1-215-445-00 | METAL 10K 1% | 1/4W | R555 | 1-249-382-11 | CARBON 1.2 5% | 1/6W |
| R305 | 1-215-443-00 | METAL 8.2K 1% | 1/4W | R556 | 1-249-382-11 | CARBON 1.2 5% | 1/6W |
| R313 | 1-215-469-00 | METAL 100K 1% | 1/4W | R557 | 1-247-883-00 | CARBON 150K 5% | 1/4W |
| R314 | 1-215-405-00 | METAL 220 1% | 1/4W | R558 | 1-249-393-11 | CARBON 10 5% | 1/4W |
| R315 | 1-215-405-00 | METAL 220 1% | 1/4W | R561 | 1-249-441-11 | CARBON 100K 5% | 1/4W |
| R316 | 1-249-393-11 | CARBON 10 5% | 1/4W | R562 | 1-249-441-11 | CARBON 100K 5% | 1/4W |
| R322 | 1-249-421-11 | CARBON 2.2K 5% | 1/4W | R563 | 1-247-860-11 | CARBON 16K 5% | 1/4W |
| | | | | R564 | 1-249-431-11 | CARBON 15K 5% | 1/4W |
| | | | | R565 | 1-249-382-11 | CARBON 1.2 5% | 1/6W |
| | | | | R566 | 1-249-382-11 | CARBON 1.2 5% | 1/6W |
| | | | | R567 | 1-247-883-00 | CARBON 150K 5% | 1/4W |
| | | | | R568 | 1-249-393-11 | CARBON 10 5% | 1/4W |
| | | | | R571 | 1-247-885-00 | CARBON 180K 5% | 1/4W |

